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# DEREGULATION AND REGULATORY ALTERNATIVES FOR WATER UTILITIES

Janice A. Beecher
Senior Research Specialist
The National Regulatory Research Institute

Patrick C. Mann
Institute Associate and Professor of Economics
West Virginia University

THE NATIONAL REGULATORY RESEARCH INSTITUTE
1080 Carmack Road
Columbus, Ohio 43210-1002
(614) 292-9404

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# EXECUTIVE SUMMARY

State public utility commissions have become increasingly aware of deregulation and regulatory alternatives for water utilities. Many have begun to more carefully compare regulation's benefits and costs. Most states have not deregulated water utilities in the sense of relinquishing jurisdiction, but many commissions use exemption or simplification to reduce regulation. Policy choices need not be confined to simply regulation or deregulation; in between is a substantial array of regulatory alternatives.

The rationale for deregulating water utilities differs from that for deregulating other public utilities. The argument rests not on market efficiencies or technological advancement in the industry, but mainly on reducing regulatory costs. The many problems of small water systems and their regulation contribute to this rationale.

The water supply industry in the United States has a distinctive structure in that many small systems serve a relatively small population. Public ownership and private ownership may each have advantages, but small systems of any kind are in the worst shape in financial and operational terms, due mostly to economies of scale in water supply.

Forty-six public utility commissions regulate water utilities, although the configuration of authority varies from state to state. Traditional regulation can be organized into six functional areas: certificates, rates, finances, ownership, complaints, and reports. Deregulation can occur in any or all of these areas. Commission resources are intrinsically related to the scope of regulatory jurisdiction.

Deregulation has implications for each of the functional areas of regulation. It is possible to discontinue some functions while maintaining others. A consensus of the commission staff surveyed was that eliminating commission oversight produces a worse situation than imperfect regulation and that unregulated water utilities will deteriorate without monitoring.

Many regulatory alternatives are designed to help control regulatory costs without giving up commission jurisdiction. These alternatives can be grouped into three categories: structural and jurisdictional, procedural and mechanical, and nontraditional. Commissions may want to establish appropriate evaluation criteria and proceed experimentally when considering alternatives to traditional regulation.

This research report has five components. Chapter 1 provides a conceptual framework and brief review of central issues related to water utility deregulation. Chapter 2 is an overview of the structure of the water service industry with a comparison of public and private systems. Chapter 3 summarizes the findings of a recent survey of state commission jurisdiction over water systems. Chapter 4 focuses on the experience with deregulation in some states. Finally, chapter 5 presents a discussion of regulatory alternatives for water utilities.

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# FOREWORD

The interest in deregulation extends to all public utilities, including the public water supply industry. This report addresses many facets of regulatory alternatives for water utilities in response to interest in the topic on the part of NARUC and other members of the regulatory community.

Douglas N. Jones
Director
Columbus, Ohio
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# CHAPTER 1

# WATER UTILITIES AND THE RATIONALE FOR DEREGULATION

The rationale for economic regulation of water utilities is not unlike that for regulating other public utilities. Regulation originated in the idea that monopoly providers must meet certain obligations of service at approved rates in exchange for an exclusive franchise. While it is popular to regard state regulation as a substitute for competition, regulation of a private or investor-owned utility can just as well be viewed as a substitute for public ownership.

Regulation is seen as necessary and in the public interest when a firm provides an essential service and has the properties of a natural monopoly. Most public utilities satisfy these two criteria. The appropriate extent and scope of their regulation is the central issue.[1] In selecting the appropriate level of regulation, policymakers must balance the benefits of regulation in controlling monopoly abuses and promoting equity with its administrative and economic costs.

Consistent with this view, public water supply is considered an essential service and water utilities traditionally have been viewed as natural monopolies. In general, water service can be provided more efficiently by one supplier; two or more suppliers in the same service area would increase costs and rates. In this context, regulatory protection of the captive or core customers in a price-inelastic monopoly market is an important issue. It is then reasoned that the regulation of water utilities having monopoly status is a legitimate responsibility of the state and that rate regulation of all water utilities is necessary to protect ratepayers and the public interest.

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[1] Paul F. Levy, "Problems Confronting State Commissions under Deregulation," *The Impact of Deregulation and Market Forces on Public Utilities: The Future Role of Regulation*, Patrick C. Mann and Harry M. Trebing, eds. (East Lansing, MI: The Institute of Public Utilities, Michigan State University, 1985), 3-8.

Forty-six state public utility commissions, including the Virgin Islands Public Service Commission, have jurisdiction over approximately 9,900 water utilities in the United States.[2] Although investor-owned water utilities account for 45 percent of these regulated water utilities, the pool of regulated utilities also includes municipally owned water utilities (26 percent), cooperatives (14 percent), public water districts (12 percent), and other forms of ownership such as homeowner associations (3 percent).[3] The regulatory powers of the state commissions vary substantially in both scope and the extent to which they are exercised.[4]

Recent efforts at improving commission regulation of jurisdictional water utilities can be characterized as changing the form of regulatory control. In regulating small water utilities, in particular, state commissions have become concerned that regulatory procedures developed for large water utilities, or large utilities in general, may often be inappropriate. Many have sought alternatives to traditional regulatory tools. Key studies have recognized how the regulation of small water utilities becomes a problem for public utility commissions (figure 1-1) as well as proposed ways in which commissions can deal with problems of regulating small water utilities (figure 1-2).

Regulators are beginning to more carefully compare the benefits of regulation to the costs of providing regulatory protection to water consumers. Recently, some state commissions have taken steps to reduce the regulation of water utilities under their jurisdiction. For example, Iowa, Arkansas, and Oregon have deregulated small privately owned water utilities; West Virginia has partially deregulated publicly owned water utilities. Commissions in some states--including Florida, Rhode Island, and Wisconsin--have initiated studies of deregulation or reduced regulation.

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[2] Janice A. Beecher and Ann P. Laubach, *1989 Survey on State Commission Regulation of Water and Sewer Systems* (Columbus, OH: The National Regulatory Research Institute, May 1989). Water utilities are not regulated by the public utility commissions in the District of Columbia, Georgia, Minnesota, Nebraska, North Dakota, South Dakota, and Puerto Rico.

[3] The scope of jurisdiction with regard to publicly owned systems, however, tends to be more limited than that for investor-owned systems.

[4] See National Association of Regulatory Utility Commissioners, *Annual Report on Utility and Carrier Regulation* (Washington, DC: National Association of Regulatory Utility Commissions, annual) and appendix A of this report.

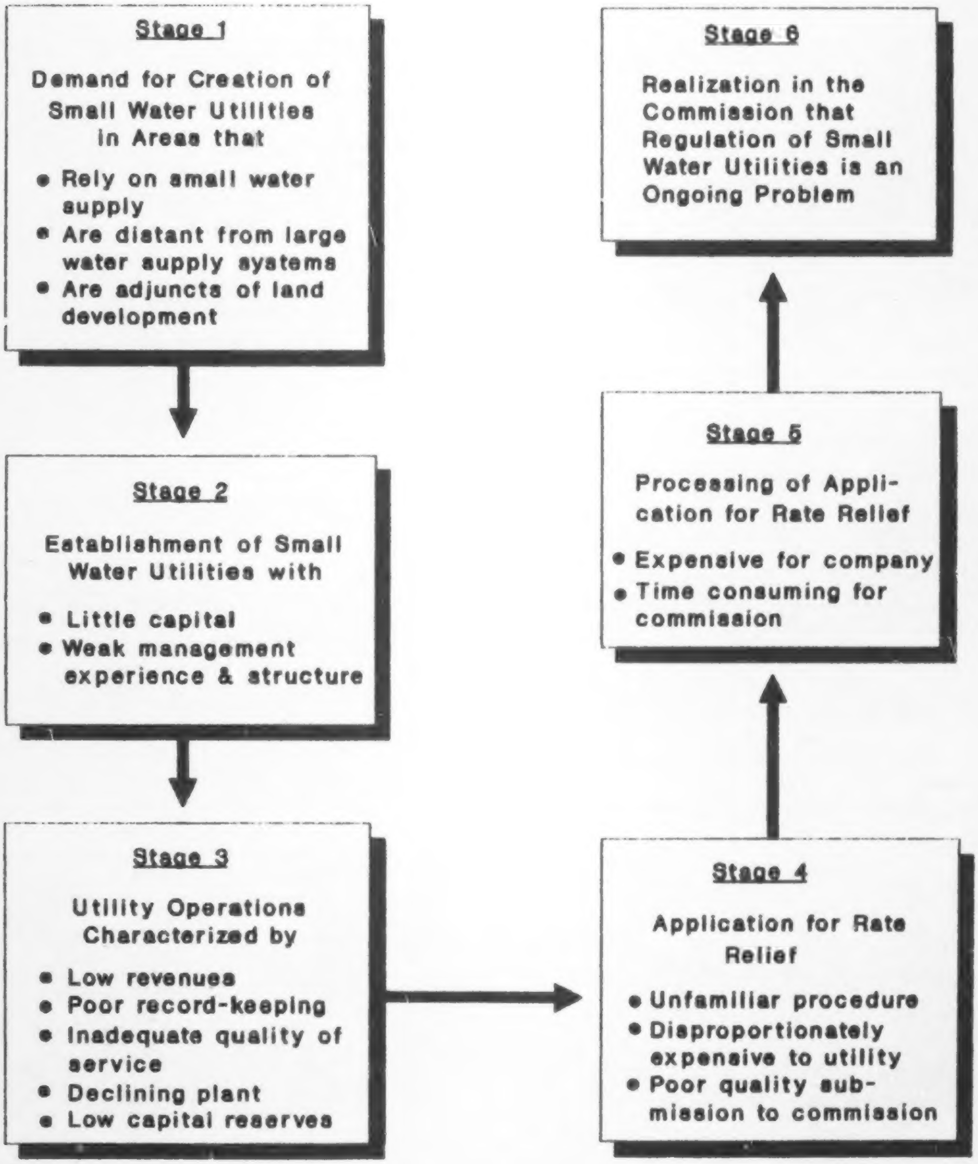
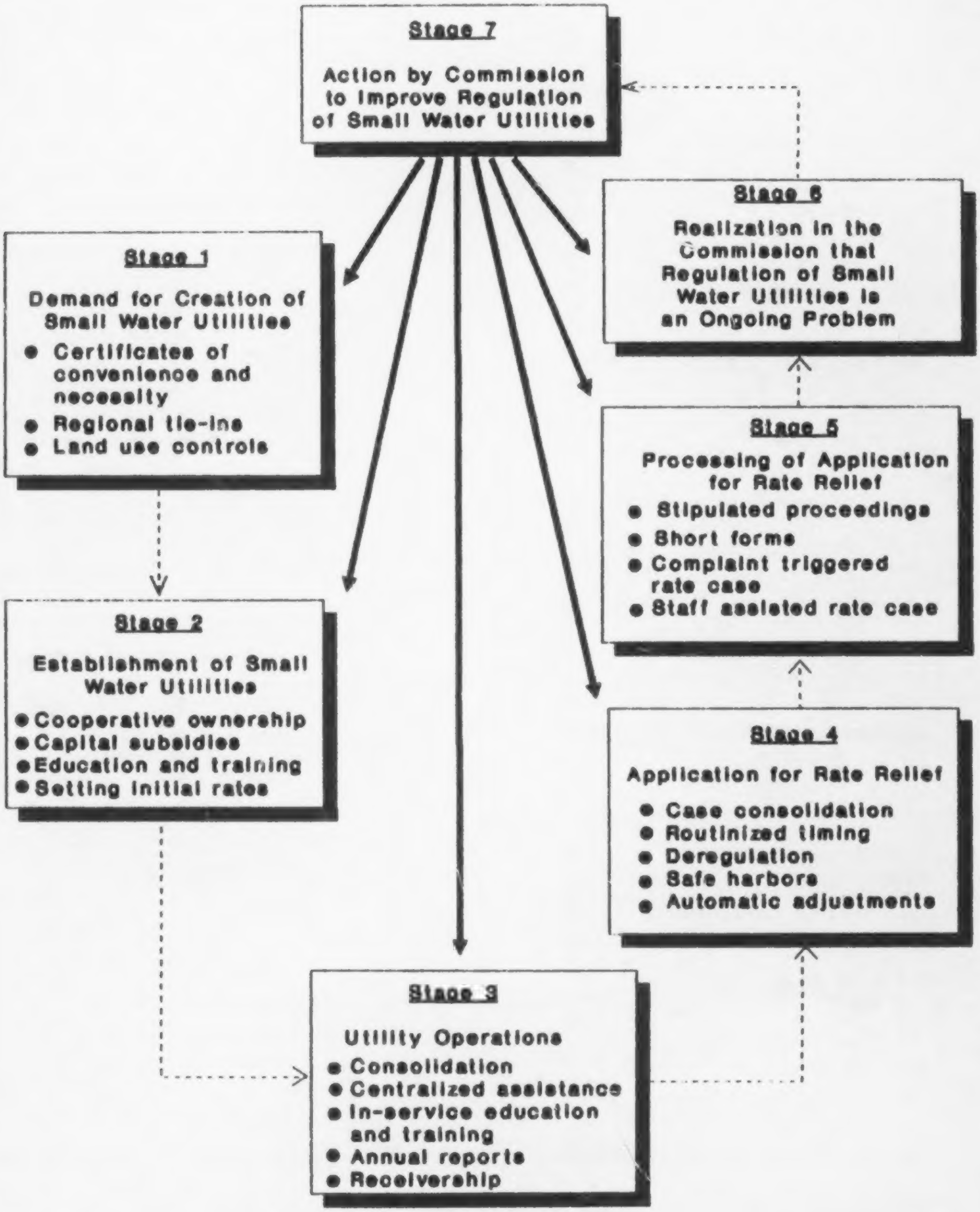

Stage 1
Demand for Creation of Small Water Utilities in Areas that
• Rely on small water supply
• Are distant from large water supply systems
• Are adjuncts of land development
Stage 2
Establishment of Small Water Utilities with
• Little capital
• Weak management experience & structure
Stage 3
Utility Operations Characterized by
• Low revenues
• Poor record-keeping
• Inadequate quality of service
• Declining plant
• Low capital reserves
Stage 4
Application for Rate Relief
• Unfamiliar procedure
• Disproportionately expensive to utility
• Poor quality submission to commission
Stage 5
Processing of Application for Rate Relief
• Expensive for company
• Time consuming for commission
Stage 6
Realization in the Commission that Regulation of Small Water Utilities is an Ongoing Problem

Fig. 1-1. How the regulation of small water utilities becomes a problem for commissions as dipicted in Raymond W. Lawton and Vivian Witkind Davis, *Commission Regulation of Small Water Utilities: Some Issues and Solutions* (Columbus, OH: The National Regulatory Research Institute, 1983), 67.



Stage 7
Action by Commission to Improve Regulation of Small Water Utilities
Stage 1
Demand for Creation of Small Water Utilities
• Certificates of convenience and necessity
• Regional tie-ins
• Land use controls
Stage 2
Establishment of Small Water Utilities
• Cooperative ownership
• Capital subsidies
• Education and training
• Setting initial rates
Stage 3
Utility Operations
• Consolidation
• Centralized assistance
• In-service education and training
• Annual reports
• Receivership
Stage 4
Application for Rate Relief
• Case consolidation
• Routinized timing
• Deregulation
• Safe harbors
• Automatic adjustments
Stage 5
Processing of Application for Rate Relief
• Stipulated proceedings
• Short forms
• Complaint triggered rate case
• Staff assisted rate case
Stage 6
Realization in the Commission that Regulation of Small Water Utilities is an Ongoing Problem

Fig 1-2. How commissions can deal with problems of regulating small water utilities as dipicted in Raymond W. Lawton and Vivian Witkind Davis, *Commission Regulation of Small Water Utilities: Some Issues and Solutions* (Columbus, OH: The National Regulatory Research Institute, 1983), 67.

In some cases, commissions have had no choice but to explore regulatory alternatives. When a 1988 Ohio statute called for commission regulation of not-for-profit water and sewer systems, the Public Utilities Commission of Ohio launched an investigation of its options, in part because the statute could add as many as 700 water utilities to the agency's jurisdiction.[5]

In reality, states have not really deregulated in the sense of surrendering *jurisdiction*. Instead, they typically have created exemptions for *some* utilities that meet certain criteria. Exempted utilities are only exempt as long as specific criteria are met. A change in circumstances (such as the addition of many new customers) may bring them back into the commission's purview. In other instances, small water utilities can avail themselves of simplified procedures that partially exempt them from the traditional regulatory process. Again, however, jurisdiction is maintained, not surrendered. Nevertheless, while exempt from regulation the water system is at least temporarily deregulated.

Issues of water utility deregulation include effects on utilities, ratepayers, and regulatory agencies. It can be presumed that effective competition in the water service sector is virtually nonexistent. Thus, when deregulation is under consideration, there may be an inherent tendency toward the regulatory status quo since deregulation involves substantial uncertainty as to its eventual performance effects. In addition to traditional performance and service quality issues, important questions remain concerning the cost of water utility regulation and the potential cost savings from regulatory alternatives for water utilities, the need for some minimum monitoring or surveillance activity for the deregulated water utilities, and the appropriate division of regulatory authority between states and localities.[6]

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[5] David C. Wagman and Raymond W. Lawton, *An Examination of Alternative Institutional Arrangements for Regulating Small Water Utilities in Ohio: An Abridgment* (Columbus, OH: The National Regulatory Research Institute, 1989), 11.

[6] For a general commentary on this issue, see Douglas N. Jones, "The Rational Division of Regulatory Authority between the States and Federal Agencies," *Public Utility Regulation in an Environment of Change*, Patrick C. Mann and Harry M. Trebing, eds. (East Lansing, MI: The Institute of Public Utilities, Michigan State University, 1987), 39-53.

This research report focuses on regulatory alternatives for water utilities. The central question implicit in the debate over deregulating water utilities is whether traditional rate base regulation, particularly as applied to small water utilities, is deficient. If so, is it sufficiently deficient to require new regulatory approaches to water utilities? The critical policy choice is not simply between regulation and deregulation. A substantial array of regulatory alternatives fall in between, and some are fairly complex. Each represents a different gradation of regulatory oversight. Commissions may need to develop evaluation criteria to assess their appropriateness.

The report has five components. This chapter provides a conceptual framework and brief review of central issues related to water utility deregulation. Chapter 2 is an overview of the structure of the water service industry with a comparison of public and private systems. Chapter 3 summarizes the findings of a recent survey of state commission jurisdiction over water systems conducted by The National Regulatory Research Institute. Chapter 4 focuses on the experience with deregulation in some states. Finally, chapter 5 presents a discussion of regulatory alternatives for water utilities.

## Water Supply and the Small-Systems Problem

The case for deregulating water utilities is related to the nature of the water supply industry itself, whose chief characteristic is the fact that numerous small water systems serve a relatively small share of the population while a few large systems serve a relatively large share of the population. Put differently, while there are many small systems, they are so small (in terms of size of community served) that they provide service to only a small share of the total population served by public water suppliers. As discussed in detail in chapter 2, many of these small systems either are privately owned or ancillary systems, and many are subject to regulation. These relationships are shown in figure 1-3 and on a percentage basis in figure 1-4.

Small water systems are generally defined by the U.S. Environmental Protection Agency as those serving fewer than 3,300 people. The problems of these systems are well documented, and they typically have the following characteristics:[7]

- owned by a homeowners' association, institution, or mobile-home-park entrepreneur
- average number of persons served is fewer than 500
- no full-time or even part-time water system operator
- little or no knowledge of water system finances
- no water rate to support the full cost of service delivery
- no economies of scale
- often serve a low-income and/or fixed-income population
- little or no access to capital
- difficulty monitoring water contaminants
- difficulty complying with drinking water standards
- no provision for depreciation

According to a report commissioned by the National Council on Public Works Improvement:

> [S]mall water systems operate on a marginal basis, with inadequate resources--operational and managerial--to correct existing deficiencies. Owners/operators of these systems are often unable to respond effectively to emergencies or the need for unplanned improvements. Small water systems are expected to consistently deliver safe and dependable supplies of water to consumers, however, even though they find it inherently difficult to manage, operate, and maintain their systems properly. . . . The small water system problem is not one of "deteriorating infrastructure;" it is one that can be described as "insufficient infrastructure" and little or no "human capital."[8]

Issues of deregulation and regulatory alternatives cannot be divorced from the issue of system size. Deregulation is often envisioned for small systems but not necessarily for large ones. Large systems can be identified readily with other large public utilities, such as electric utilities. Arguments favoring deregulating large water systems are comparable to

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[7] Adapted from Wade Miller Associates, Inc., *The Nation's Public Works: Report on Water Supply* (Washington, DC: National Council on Public Works Improvement, 1987), 12-13.

[8] Ibid., 13.

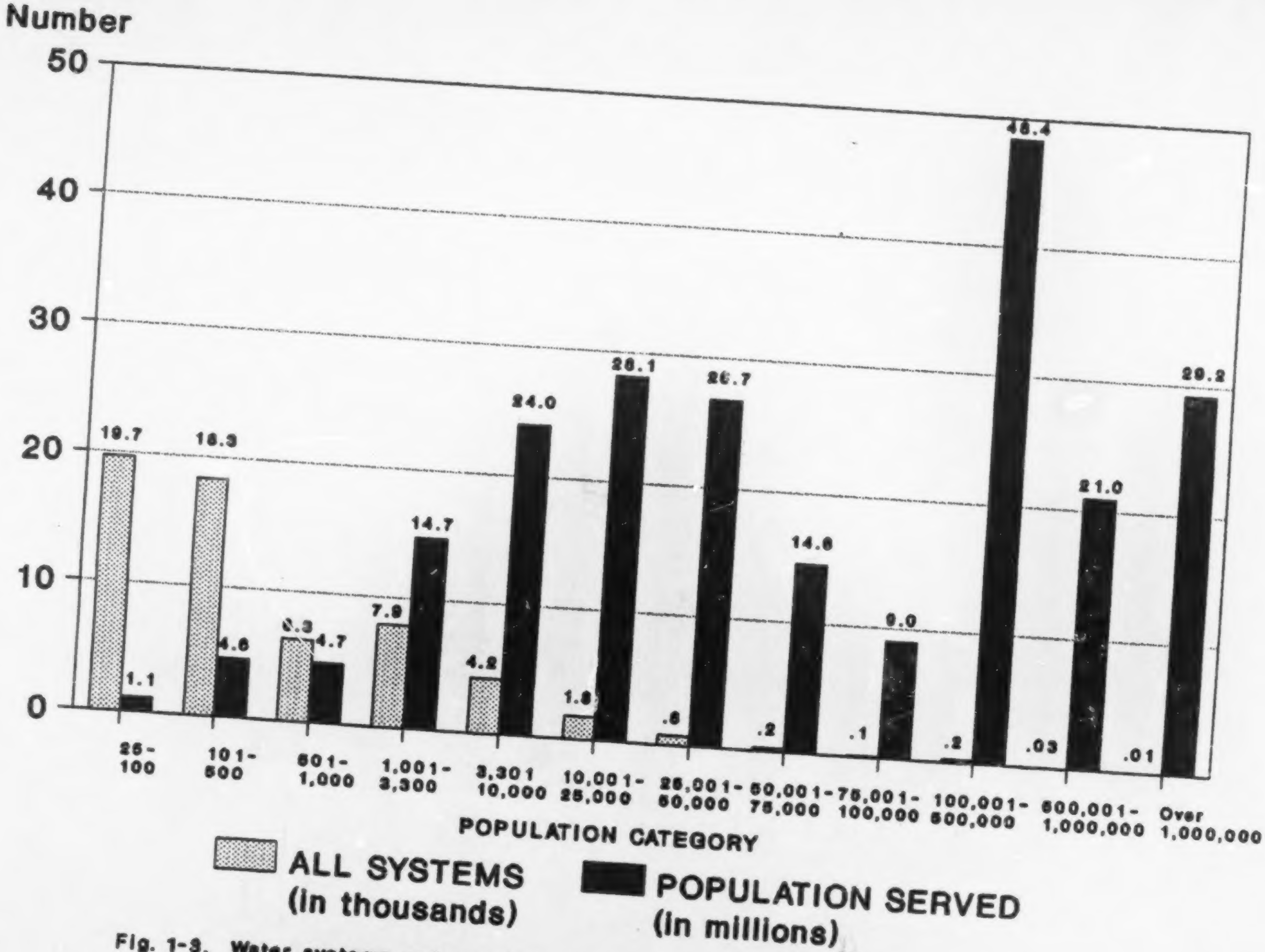

Fig. 1-3. Water systems and population served by community size as reported in EPA attachment to Frederick W. Immerman, *Final Descriptive Summary: 1986 Survey of Community Water Systems* (Washington, DC: Environmental Protection Agency, 1987), summary table dated May 23, 1988.

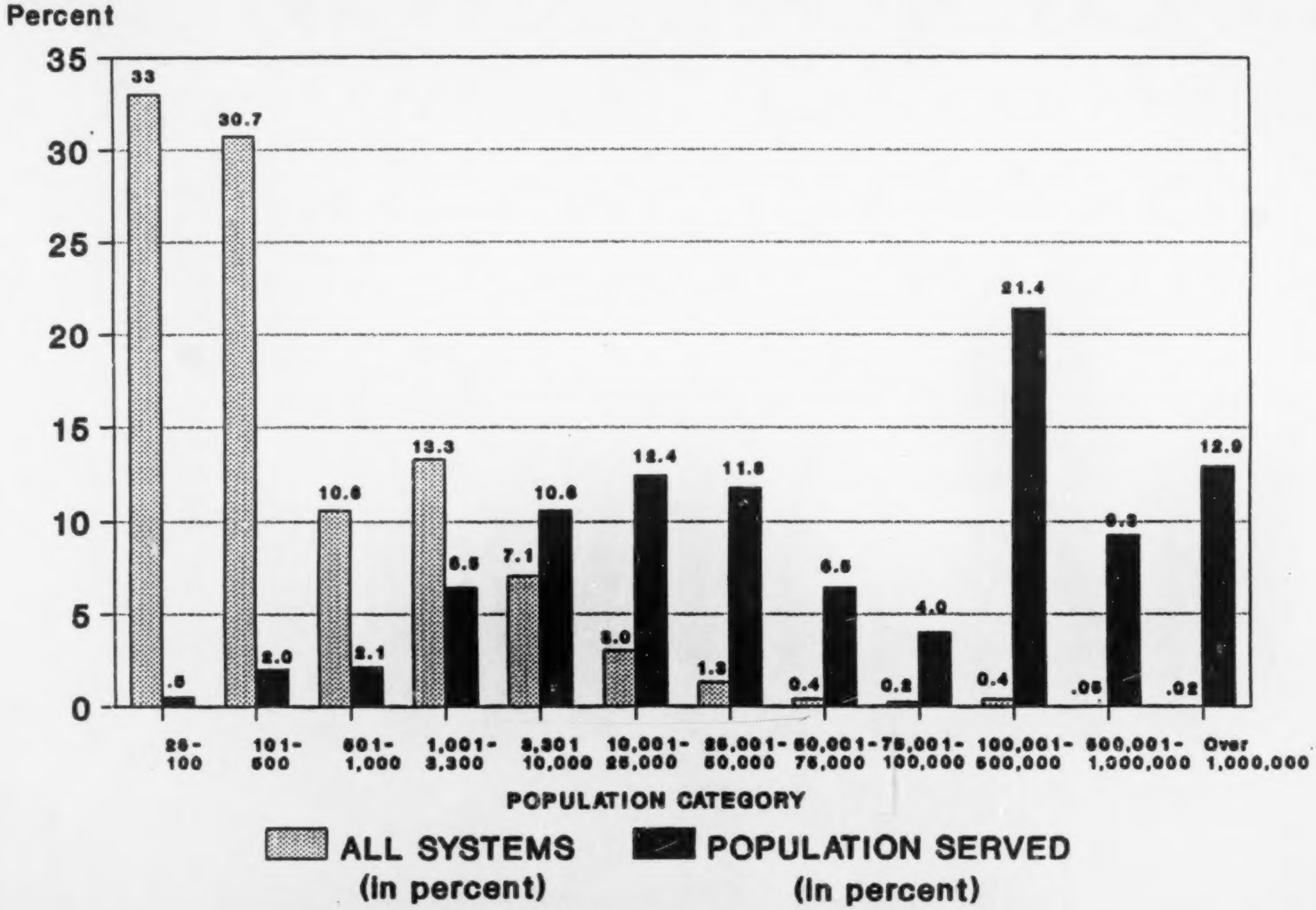

Fig. 1-4. Water systems and population served by community size (in percentages) as reported in EPA attachment to Frederick W. Immerman, *Final Descriptive Summary: 1986 Survey of Community* Water Systems (Washington, DC: Environmental Protection Agency, 1987), summary table dated May 23, 1988.

arguments made for deregulating electric and gas utilities: that is, deregulation would allow market forces to improve the overall efficiency of water service.

Small water systems are not analogous to typical public utilities in the electricity, gas, and telecommunications industries. In fact, the very smallest water providers may be more like regulated transportation carriers (trucking, taxicabs, small bus lines, and local delivery services) than public utilities in terms of such features as owner-operator management and financial fitness.[9] Despite the small size of many water utilities, the general principles of utility regulation still apply. The regulation of small systems, however, often takes into account the reality of system size.

Water utilities are like other types of public utilities in terms of being highly capital intensive.[10] Yet many, because of their small size and weak financial structure, may lack the ability to attract capital through the same mechanisms available to electric, gas, telephone, and even larger water utilities. Many small water utilities lack a substantial rate base because their original costs were added to and recovered through the purchase price of houses in a residential subdivision. Without a sufficient rate base, equity, or physical assets to serve as collateral, small water utilities find it difficult and expensive to raise capital. Tales of the very small water utility owner faced with using his house or car as collateral for capital are widely circulated.

Inadequate capital for construction and maintenance is often accompanied by inadequate management, both financial and otherwise. The problem is a circular one. Lack of funds can lead to an inability to support a management structure adequate to maintain comprehensive financial records and attract capital. Many small systems may be unable to command adequate management. Managing a small water utility is often a second job, and often more work than bargained for. Many owner-operators intended to sell real estate, not water, making the utility ancillary to their regular business. Rather than fulfilling an obligation to serve, some may be more interested in recovering their investment and moving on to new business opportunities.

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[9] Of course, not all public utility commissions have jurisdiction over carriers; this authority may fall to another state agency. Nevertheless, the regulated carrier model is still a useful one for thinking about regulatory alternatives for water utilities.

[10] This discussion is from Raymond W. Lawton and Vivian Witkind Davis, *Commission Regulation of Small Water Utilities: Some Issues and Solutions* (Columbus, OH: The National Regulatory Research Institute, 1983), 5-6.

A 1986 survey by The National Regulatory Research Institute identified several of the key performance problems that are prevalent in the small water industry.[11] These problems include poor record keeping, inadequate capital (negative rate base), lack of access to management/owner, poor water quality, poor management, operating losses, poor maintenance, customer complaints to commissions, and low returns on investment. Deregulation advocates often point to the great abundance of small water systems, which in combination with their generally poor performance, often plays a role in arguments for the industry's deregulation.

## Structural and Regulatory Change

Both regulation and deregulation are concepts that frequently involve definitional problems. A schematic of structural and regulatory change among water utilities is depicted in figure 1-4. Obviously, regulation is the process through which unregulated private utilities become regulated private utilities. Much of state regulation focuses on these private or investor-owned utilities to prevent monopoly abuse. Deregulation is the reverse process whereby regulatory jurisdiction is relinquished. Public acquisition involves the transfer of a regulated or nonregulated private utility to a public utility. Privatization occurs when publicly owned utilities become privately owned (or investor owned) or operated by a private firm under a long-term contract. Privatization may occur with or without the imposition of regulatory controls. A complication not shown in this illustration is the fact that some publicly owned utilities also fall under state jurisdiction and, thus, are regulated public utilities.

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[11] Patrick C. Mann, G. Richard Dreese, and Miriam A. Tucker, *Commission Regulation of Small Water Utilities: Mergers and Acquisitions* (Columbus, OH: The National Regulatory Research Institute, 1986), 20.

The data reported in table 1-1 reveal a slight tendency toward public acquisition of privately owned water utilities for the 1982-1986 period.[12] A majority of the utilities that changed ownership form (230) were acquired municipalities, water/sewer districts, counties, or Indian Tribes. In most cases, this type of acquisition removed the utility from state commission jurisdiction. However, a substantial number of systems (165) were acquired by other privately owned utilities. In these cases, commission regulation of water service is maintained, although it is applied to a fewer number of firms. Sixty-six utilities were acquired by nonprofit homeowners' associations or cooperatives, some of which are commission regulated. Finally, the survey revealed that thirty-nine utilities were dissolved, rather than acquired.

It should be clear that deregulation can be a rather ambiguous concept. Regulated private utilities can either become unregulated private utilities or publicly owned utilities. Only the former constitutes deregulation in this framework although both may remove the utility from the state's jurisdiction. It is generally assumed that a deregulated utility can only be a privately owned utility. Public acquisition (such as joining or becoming a municipal utility), however, essentially shifts jurisdiction by substituting local government ownership and control for state commission regulation.[13]

From the state government's perspective, deregulation results in the complete absence of regulatory oversight. This would be the case if the regulatory agency were completely dismantled (or at least that part of the agency having the jurisdiction in question). In practice, full deregulation rarely occurs. More often, the term deregulation is used in reference to *exemption*, such as establishing minimum-size thresholds for regulated water utilities or exempting some utilities from certain commission procedures. The term is also used sometimes in conjunction with *simplified* commission procedures. For the purposes of this study, exemption and simplification do not constitute deregulation, but they are regulatory alternatives available to commissions, as discussed in chapter 5.

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[12] Mann, Dreese, and Tucker, *Commission Regulation of Small Water Utilities: Mergers and Acquisitions*.

[13] Both forms of regulation coexist when the state commission has jurisdiction over publicly owned systems.

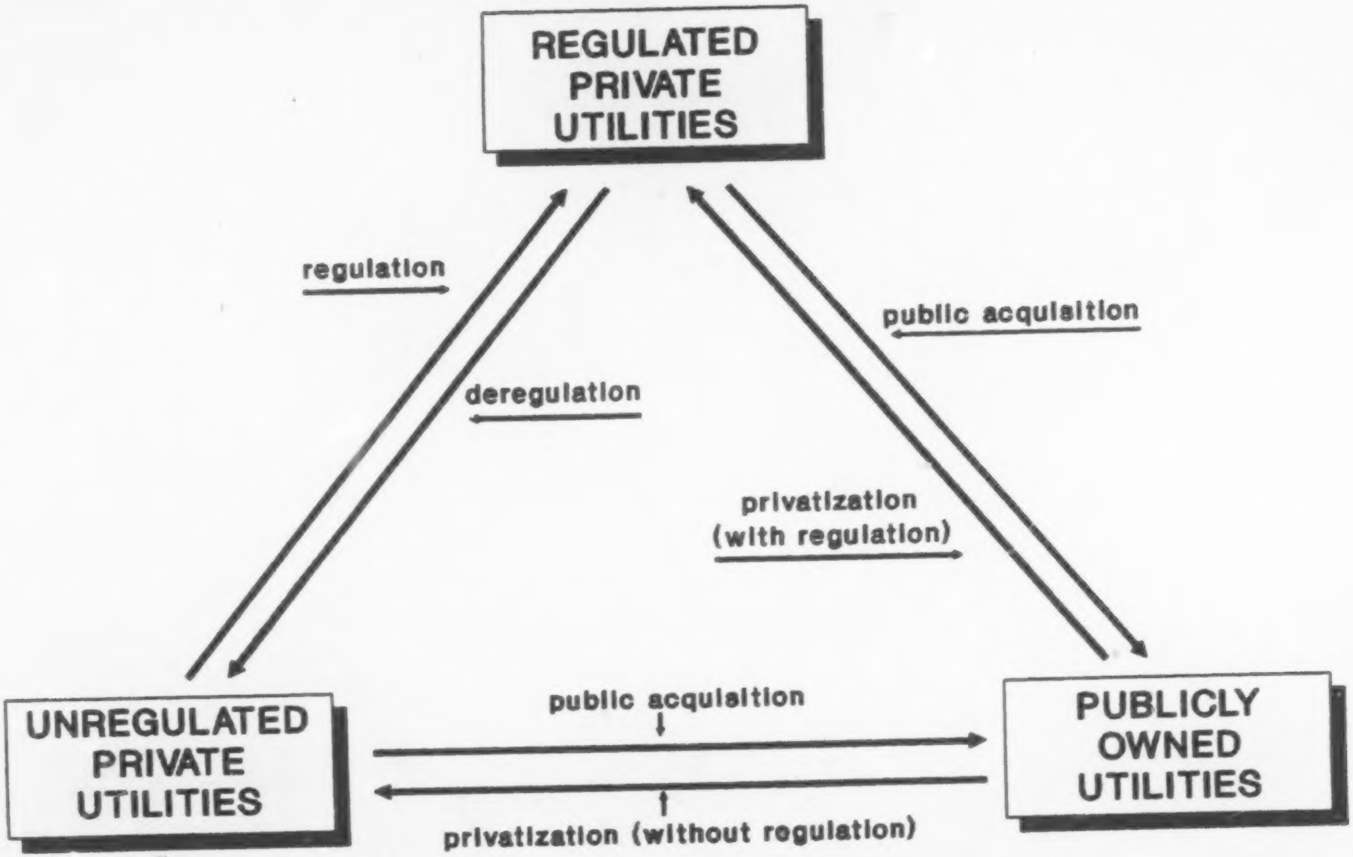
REGULATED PRIVATE UTILITIES
regulation
deregulation
public acquisition
privatization (with regulation)
UNREGULATED PRIVATE UTILITIES
public acquisition
privatization (without regulation)
PUBLICLY OWNED UTILITIES

Fig. 1-5. Structural and regulatory change among water utilities.

TABLE 1-1

DISPOSITION OF PRIVATELY OWNED WATER UTILITIES, 1982-1986

| Acquiring Entity | Number of Utilities | |
|---|---|---|
| *Public (total)* | | 230 |
| Municipality | 119 | |
| Water/Sewer District | 61 | |
| County | 49 | |
| Indian Tribe | 1 | |
| *Private (total)* | | 165 |
| *Non-Profit (total)* | | 66 |
| Homeowners' Association | 36 | |
| Cooperative | 30 | |
| *None** | | 39 |
| *Total* | | 500 |

Source: 1986 NRRI Survey as reported in Patrick C. Mann, G. Richard Dreese, and Miriam A. Tucker, *Commission Regulation of Small Water Utilities: Mergers and Acquisitions* (Columbus, OH: The National Regulatory Research Institute, 1986), 24.

* Dissolution of the water utility.

## The Rationale for Deregulation

Although the rationale for *regulation* may be similar, the rationale for *deregulation* is not consistent across public utilities or, for that matter, among other regulated industries. In telecommunications, deregulation has been driven essentially by technological change, while deregulation in energy has been driven essentially by competitive forces.[14] In contrast, deregulation among water utilities appears driven by two forces. One is a belief in the existence of other adequate safeguards. The second is the potential cost savings from deregulation, which presumably would be realized in terms of savings to regulators and savings to the regulated industry, and hence its ratepayers. Thus, the problems and issues confronting state commissions under telecommunications and energy deregulation are generally not applicable to water utility deregulation.[15]

### Deregulation and Other Safeguards

The case for deregulation or reduced regulation of water utilities is sometimes based on the argument that adequate safeguards exist to protect ratepayers and the overall public interest without state commission regulation. Water quality is regulated by the U.S. Environmental Protection Agency, usually through state drinking water quality agencies that have primary responsibility for this regulatory function. Publicly owned systems are governed by municipalities, counties, water districts, or other authorities that perform the regulatory function. Not-for-profit systems are, by definition, not motivated to expand profits and have governing bodies to which they are accountable.

Local regulation, through ownership and other forms of local control, is one alternative to state regulation of water utilities, and it may have certain advantages. First, local government control over water system operation and rates may permit flexibility in rate design sufficient to meet unique local needs and conditions. For example, water rates could be designed to stimulate economic or industrial development. Second, local consumers and the local electorate may have more opportunities for input into the operation of the local water system. Third, local government units may be more sensitive to the requirements of the local water system as well as to the needs of its customers than state commissions.

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[14] Robert J. Keegan and Paul F. Levy, "Options for Modifying Rate Base Regulation," *New Regulatory and Management Strategies in a Changing Market Environment*, Harry M. Trebing and Patrick C. Mann, eds. (East Lansing, MI: The Institute of Public Utilities. Michigan State University, 1987), 3-21.
[15] Levy, "Problems."

There also are disadvantages to local regulation as compared with regulation by a state authority. First, local regulation may increase costs (and hence rates) because decentralizing regulation creates a duplication of effort and staff by the numerous local units controlling water service. Second, services presently provided by state commission staff (for example, engineering, accounting, rate design, safety standards, and operating rules) would no longer be available. These essentially free services would most likely be provided to smaller local government units by consultants. Again, these costs would be reflected in higher water rates. Third, local regulation may increase the potential for discriminatory wholesale rates, particularly for those wholesale customers located outside the jurisdiction of the local government unit. Fourth, local regulation may increase the potential for cross subsidization across other municipal services, customer classes, and geographical areas within service areas. Fifth, the lack of comparability in regulatory methods (in such areas as accounting, depreciation, and rate design) could be a source of inequity across communities as well as other adverse effects on ratepayers and the financial health of water utilities. Sixth, local control of utility services can invite political favoritism, manipulation, and even scandal. This possibility was part of the rationale for state regulation in the first place. Finally, local regulation decentralizes planning and other policy processes, making it difficult to develop and implement statewide and regional approaches to future supply issues. This may be especially important during periods when water is in short supply, such as during a drought.[16]

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[16] See Janice A. Beecher and Ann P. Laubach, *Compendium on Water Supply, Conservation, and Drought* (Columbus, OH: The National Regulatory Research Institute, 1989).

## Deregulation and Cost Savings

The case for deregulation is also based on the argument that small water utilities are costly to regulate relative to the benefits of regulation. For example, the administrative expenses of regulating small water utilities may exceed the regulatory expenditures justified by the proportion of the public that these small water utilities serve. It could be hypothesized that deregulating small water utilities has the potential for making the rate regulation task simpler for state regulators at the expense of many small water utilities failing to comply with drinking water regulations.[17]

Conceptually, the resource savings to commissions from deregulation can be measured in two areas. First, deregulation may free time and other resources for regulating other public utility sectors. Second, it may make it possible to more effectively regulate larger jurisdictional water utilities. On the other hand, given that the typical commission devotes only a relatively small share of its resources to water utility regulation, it is possible that the potential cost savings from deregulation may not be substantial.[18] Furthermore, deregulation (or substantial exemption) may be a recognition that a limited number of staff can provide a limited amount of regulation. In more positive terms, deregulation may permit staff to regulate more effectively the water utilities that remain under commission jurisdiction.

Another area of potential cost savings is for water utilities themselves, and thus ratepayers. For the very smallest water utilities, the cost of regulation can be burdensome. Costs are significant especially in the areas of reporting and rate filings. For the owner-operator, record keeping and reporting can be overwhelming while resources may be insufficient to pay for outside assistance. The cost of a rate case actually may deter some utilities from seeking legitimate rate relief for increased operating expenses. Thus, reducing regulation can represent significant cost savings to the smaller regulated utility.

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[17] On the other hand, it could also be hypothesized that state commissions are the appropriate vehicle for ensuring full-cost pricing and thus facilitating compliance with the federal Safe Drinking Water Act (SDWA).

[18] Lawton and Davis, *Commission Regulation of Small Water Utilities: Some Issues and Solutions*.

## Conclusion

Past discussion of the impacts of water utility deregulation upon ratepayers, water utilities, and commissions has been largely characterized by rhetoric and speculation with few, if any, theoretical or empirical analyses of water utility deregulation. No published and reliable data on the subject exist even now. Those favoring deregulation as a policy option have emphasized the cost savings of deregulation; however, these cost savings have not been well demonstrated empirically. Those advocating retaining the present form of water utility regulation have generally done so without examining the costs and benefits of maintaining the regulatory status quo.

According to a recent report of The National Regulatory Research Institute, deregulating water utilities may be acceptable if:[19]

- the price for water is perceived as fair
- the cost of regulation is unacceptably high
- the utility is small
- substitutes are available (such as individual wells and bottled water)
- adequate regulatory safeguards exist through other institutions
- existing law and policy support deregulation

Additionally, selecting the appropriate level of water utility regulation must be made in light of potential abuses of monopoly power under deregulation, the effects on service reliability and quality, and the potential for price discrimination and cross-subsidization between customers with different price elasticities of demand.

With the potential for abuse of captive consumers, it may be inappropriate to surrender jurisdiction or, in the case of municipalization, essentially shift regulatory responsibility to local agencies with little experience in rate regulation and inadequate resources to regulate water utilities. It must be admitted that inadequate resources can be a problem for some state commissions, too. In fact, for many of the problems of small water systems, deregulation is not a "solution" save that it removes those problems from the purview of the state commissions. Of course, this is a matter of policy choice. However, it may be appropriate to seek out alternatives to the traditional regulatory form that will reduce the cost of regulation while maintaining its chief benefits. Developing appropriate criteria for evaluating regulatory alternatives, before making changes on a large scale, is of obvious importance.

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[19] Wagman and Lawton, *An Examination of Alternative Institutional Arrangements*, 11.

# CHAPTER 2

# A PROFILE OF THE WATER UTILITY INDUSTRY

Issues of deregulation and regulatory alternatives for water utilities are intrinsically related to the structure of the central water supply industry in the United States. This chapter provides a statistical profile of the water supply industry while highlighting differences between publicly and privately owned systems.

According to the U.S. Geological Survey, the public supply of water amounts to approximately 36,500 million gallons per day.[1] About 60 percent of public water supplies comes from surface water sources; the remainder comes from groundwater sources. Eighty-four percent is used for domestic and commercial purposes, with the rest used for industrial purposes. About 90 percent of the United States' population is served by central water suppliers, while the rest is self-supplied through private wells or other sources.

The nation's public water supply industry has its origins in the seventeenth century.[2] The first water system of record was constructed in Boston, Massachusetts in 1652. It was a privately owned gravity system using wooden pipes and a single wooden storage tank. The first publicly owned system was operated by Winchester, Virginia shortly before 1800.

In its early history, the water supply industry was dominated by private ownership, as seen in table 2-1. The eighteenth century saw dramatic expansion of the central supply industry. However, the rate of growth in the number of public systems far outpaced that of private systems. By the end of the century, the scales tipped slightly in favor of public

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[1] Wayne B. Solley, Charles F. Merk, and Robert R. Pierce, *Estimated Used of Water in the United States* (Washington, DC: U.S. Geological Survey, 1988), 55.
[2] Charles F. Phillips, Jr., *The Regulation of Public Utilities* (Arlington, VA: Public Utilities Reports, Inc., 1988), 759.

## TABLE 2-1

## HISTORICAL DEVELOPMENT OF WATER SYSTEMS IN THE UNITED STATES

| Year | Publicly Owned | Privately Owned | Total | Percent of Total | |
|---|---|---|---|---|---|
| | | | | Public | Private |
| 1800 | 1 | 15 | 16 | 6.3 | 93.7 |
| 1810 | 5 | 21 | 26 | 19.2 | 80.8 |
| 1820 | 5 | 25 | 30 | 16.6 | 83.4 |
| 1830 | 9 | 35 | 44 | 20.5 | 79.5 |
| 1840 | 23 | 41 | 64 | 35.9 | 64.1 |
| 1850 | 33 | 50 | 83 | 39.7 | 60.3 |
| 1860 | 57 | 79 | 136 | 41.9 | 58.1 |
| 1870 | 116 | 127 | 243 | 47.7 | 52.3 |
| 1880 | 293 | 305 | 598 | 49.0 | 51.0 |
| 1890 | 806 | 1,072 | 1,878 | 42.9 | 57.1 |
| 1896 | 1,690 | 1,489 | 3,179* | 53.2 | 46.8 |

Source: M.N. Baker (1899) as reported in Charles F. Phillips, Jr., *The Regulation of Public Utilities* (Arlington, VA: Public Utilities Reports, Inc., 1988), 759.

* There were seventeen additional water systems, of which twelve were of joint ownership and five were of unknown ownership.

water suppliers. Today, after nine decades of growth in the industry, the picture is not all that different from the turn of the century.

## The EPA's 1986 Survey of Community Water Systems

Counting the number of water suppliers is no easy task. The total is constantly in fluctuation as suppliers enter or exit the water business. A reliable total is also hard to come by because of the numerous small systems that operate. A 1986 survey by the U.S. Environmental Protection Agency (EPA), based on a stratified sample, puts the total number of water systems in the nation at 52,509.[3] All of the EPA survey data must be used with caution. For some issues, the data are limited by a small number of survey responses. The data also are only for one year, 1986. Nevertheless, the survey probably provides the best available data for sketching, in broad strokes at least, a profile of the water utility industry.

### Ownership and Size

As shown in table 2-2, about 46 percent of all systems are publicly owned (local, municipal government, federal government, and on Indian land).[4] The rest can be divided almost evenly between private systems (investor-owned, homeowners' associations or subdivisions, and others) and ancillary systems (mobile home parks, institutions, schools, hospitals, and others). The distinction between private and ancillary systems is important but sometimes ambiguous. As will be discussed in the following chapter, the jurisdiction of the state public utility commissions is often distinguished on the basis of ownership, though not necessarily using the EPA's terms.

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[3] This total is based on survey responses in a stratified random sample, as reported in Frederick W. Immerman, *Final Descriptive Summary, 1986 Survey of Community Water Systems* (Washington, DC: Office of Drinking Water, U.S. Environmental Protection Agency, 1987) table 2-2. An EPA attachment to this source dated 5/23/88 increases the total number of systems to 59,621 based on systems reporting to state drinking water agencies. It is possible that this number is inflated by nonoperating systems. For the purpose of this analysis, which is primarily to show *relative* differences among categories of systems, the 1986 data are used because of the additional detail they provide.

[4] Immerman, *Final Descriptive Summary*, table 2-2.

## TABLE 2-2

## OWNERSHIP OF WATER UTILITIES, 1986

| Ownership Structure* | Number of Utilities | Percent of All Systems |
|---|---|---|
| Public | | |
| Local, municipal government | 23,248 | 44.3% |
| Federal government | 528 | 1.0 |
| On Indian land | 127 | .2 |
| *Subtotal* | 23,903 | 45.5 |
| Private | | |
| Investor-owned | | |
| Financially independent | 6,716 | 12.8 |
| Financially dependent on parent company | 986 | 1.9 |
| Homeowners' association or subdivision | 6,163 | 11.7 |
| Other | 661 | 1.3 |
| Don't know/refused | 178 | .3 |
| *Subtotal* | 14,703 | 28.0 |
| Ancillary | | |
| Mobile home parks | 10,150 | 19.3 |
| Institutions | 535 | 1.0 |
| Schools | 458 | .9 |
| Hospitals | 91 | .2 |
| Other | 2,638 | 5.0 |
| Don't know/refused | 31 | .1 |
| *Subtotal* | 13,903 | 26.5 |
| *Grand total* | 52,509 | 100.0% |

Source: Frederick W. Immerman, *Final Descriptive Summary: 1986 Survey of Community Water Systems* (Washington, DC: Office of Drinking Water, U.S. Environmental Protection Agency, 1987), table 2-2.

* This table is organized strictly according to ownership, without regard to whether different types of systems are regulated.

The nation's water systems are shown by ownership structure and community size in table 2-3 and also illustrated in figure 2-1. Average daily production in millions of gallons daily (MGD) also is provided. As discussed in chapter 1, the water industry is skewed in the sense that many small systems serve relatively few people. Based on communities with fewer than 3,300 people, the threshold used to define small systems, the data suggest that nearly 88 percent of the nation's water supply systems provide water to about 11 percent of the population served. A little over 1 percent of all systems provide water to 54 percent of the population served. The vast majority of these larger systems are publicly owned.

The number of private and ancillary water systems dominates at the smaller population categories. Most ancillary systems serve populations under 3,300. At the other extreme, the increasingly fewer number of firms serving large populations is mostly a function of national demographics and the relatively few number of cities with populations over 100,000. Only a single private water utility serves a population exceeding one million.

## Water Sources and Treatment

Table 2-4 provides information on water sources according to utility ownership, although insufficient data present a limitation to its use. The table reveals that by a slight majority, most water systems rely on groundwater sources for all or most of their water. About 9 percent rely on surface sources for all or most of their water. Although not revealed in the table, water systems of different sizes tend to rely on different water sources. As might be expected, smaller systems tend to rely on groundwater sources; larger systems on surface water sources.[5]

Regardless of which sources they use, smaller systems generally treat their water at the source; larger systems are more likely to use a central treatment facility. Although most systems, regardless of size, are likely to disinfect their water, larger systems are more likely also to use conventional treatment processes, corrosion control, and fluoride addition.[6]

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[5] For data on water sources according to utility size, see Immerman, *Final Descriptive Summary*, table 2-4.

[6] Ibid., tables 3-6 and 3-7.

## TABLE 2-3

## WATER UTILITIES
## BY OWNERSHIP STRUCTURE AND POPULATION CATEGORY, 1986

| Community Size (persons) | Number of Systems | | | | | Average Daily Production MGD(d) |
|---|---|---|---|---|---|---|
| | Public (a) | Private (b) | Ancillary (c) | Total | Percent | |
| 25-100 | 1,525 | 4,544 | 8,264 | 14,333 | 27.2 | .025 |
| 101-500 | 5,416 | 5,129 | 4,743 | 15,288 | 29.1 | .057 |
| 501-1,000 | 3,777 | 1,655 | 600 | 6,032 | 11.5 | .623 |
| 1,101-3,300 | 5,831 | 1,933 | 286 | 8,050 | 15.3 | .714 |
| 3,301-10,000 | 3,950 | 904 | 5 | 4,860 | 9.2 | 1.240 |
| 10,001-25,000 | 1,828 | 237 | 5 | 2,070 | 3.9 | 4.240 |
| 25,001-50,000 | 897 | 158 | 0 | 1,055 | 2.0 | 9.911 |
| 50,001-75,000 | 227 | 38 | 0 | 265 | 0.5 | 10.150 |
| 75,001-100,000 | 145 | 22 | 0 | 167 | 0.3 | 10.472 |
| 100,001-500,000 | 261 | 52 | 0 | 313 | 0.6 | 36.593 |
| 500,001-1,000,000 | 33 | 29 | 0 | 62 | 0.1 | 104.422 |
| Over 1,000,000 | 13 | 1 | 0 | 14 | 0.03 | 442.197 |
| Totals | 23,903 | 14,703 | 13,903 | 52,509 | - | - |
| Percent | 45.5% | 28.0% | 26.5% | 100% | - | - |

Source: Frederick W. Immerman, *Final Descriptive Summary: 1986 Survey of Community Water Systems* (Washington, DC: Office of Drinking Water, U.S. Environmental Protection Agency, 1987), table 2-2 and 3-1.

(a) Local, municipal government, federal government, and on Indian land.
(b) Investor-owned (financially independent and financially dependent on parent company), homeowners' associations or subdivisions, other, and don't know/refused.
(c) Mobile home parks, institutions, schools, hospitals, other, and don't know/refused.
(d) Millions of gallons daily for 1985.

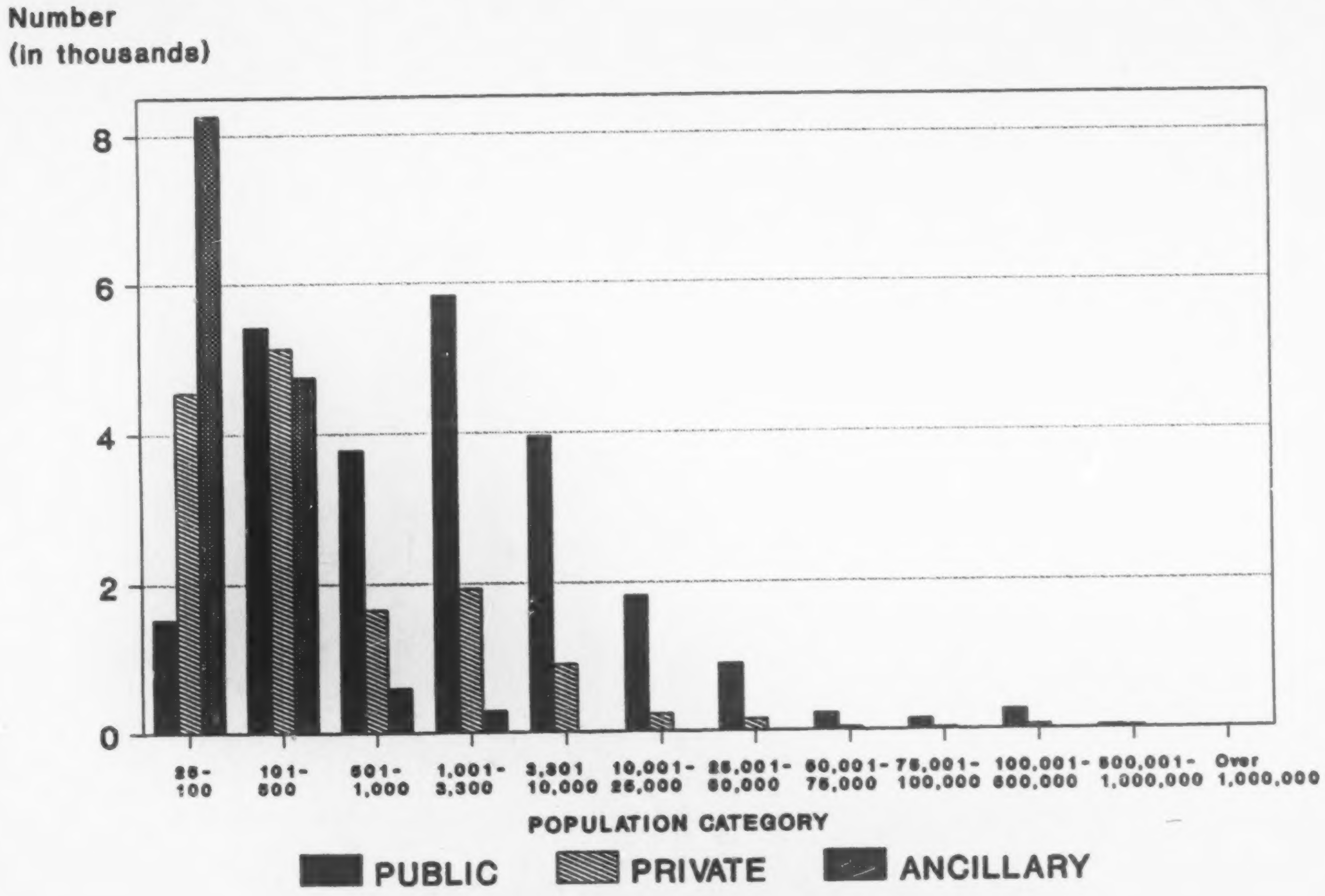

Fig. 2-1. Public, private, and ancillary water systems by community size (in thousands) as reported in Frederick W. Immerman, *Final Descriptive Summary: 1986 Survey of Community Water Systems* (Washington, DC: Office of Drinking Water, U.S. Environmental Protection Agency, 1987), table 2-2.

## TABLE 2-4

## WATER SOURCES BY OWNERSHIP STRUCTURE

| Water Source | Publicly Owned(a) | Privately Owned(b) | Ancillary(c) | All Systems |
|---|---|---|---|---|
| | *Percent of Systems* | | | |
| 100% surface | 12.1% | 4.8% | 0.1% | 6.8% |
| 50-99% surface | 3.3 | 1.2 | 0.0 | 1.8 |
| 100% ground | 54.7 | 48.5 | 43.4 | 49.9 |
| 50-99% ground | 5.5 | 3.4 | 0.9 | 3.7 |
| 100% purchased | 13.4 | 14.9 | 0.0 | 10.4 |
| 50-99% purchased | 1.4 | 0.1 | 0.0 | 0.6 |
| Unknown(d) | 9.6 | 27.2 | 55.6 | 26.8 |
| Totals | 100.0% | 100.0% | 100.0% | 100.0% |

Source: Frederick W. Immerman, *Final Descriptive Summary: 1986 Survey of Community Water Systems* (Washington, DC: Office of Drinking Water, U.S. Environmental Protection Agency, 1987), table 2-4 and 2-5.

(a) Based on a sample of 446 systems.
(b) Based on a sample of 222 systems.
(c) Based on a sample of 121 systems.
(d) Insufficient data.

## Rates

A comparison of water rate structures by ownership category, provided in table 2-5, indicates that variable rates are the most common form of pricing for all sizes of systems and for publicly owned and privately owned systems alike. Variable rates vary with the amount of water used and include increasing and decreasing block rates as well as seasonal rates and other methods for differentiating prices. The next most frequent type of rate actually is the flat fee, which is not based on water use. More privately owned systems use flat fees than any other system type. Uniform rates and charges based on something other than water use are infrequently used by all system types. The "other" category in the table is comprised of combinations of fees and rates, or different rates for different customer classes. A substantial number of water systems, including more than 50 percent of the ancillary systems, indicated "other" when asked about their rate structures.

## Operating Characteristics

Table 2-6 provides a comparison of water utility operating characteristics by ownership structure. As expected, on an average per-unit basis, revenues and expenses are greater for privately owned than publicly owned systems. Average gross assets, as expected, are greater for publicly owned systems, which are probably in a better financial position to bear high fixed costs. These differentials are usually explained by the economies of scale that benefit the larger, publicly owned systems in the sample. That is, publicly owned systems simply tend to be larger than privately owned systems. Higher expenses for privately owned systems may also be explained on the basis of taxes (which in general are not paid by publicly owned systems) and higher costs, including interest and insurance expenses.[7]

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[7] In some cases, taxes may not be a suitable explanation for the expense differential between privately and publicly owned utilities because publicly owned utilities may incur tax equivalents.

## TABLE 2-5

## WATER RATE STRUCTURES BY OWNERSHIP STRUCTURE

| Type of Rate | Publicly Owned(a) | Privately Owned(b) | Ancillary(c) | All Systems |
|---|---|---|---|---|
| | *Percent of Systems* | | | |
| Variable rate(d) | 58.5% | 43.1% | 16.7% | 50.7% |
| Flat fee(e) | 19.5 | 34.8 | 25.2 | 25.4 |
| Uniform rate(f) | 5.2 | 4.3 | 0.0 | 4.6 |
| Non-water use measure(g) | 3.1 | 3.4 | 6.6 | 3.4 |
| Other(h) | 13.8 | 14.4 | 51.5 | 15.9 |
| Totals | 100.0% | 100.0% | 100.0% | 100.0% |

Source: Frederick W. Immerman, *Final Descriptive Summary: 1986 Survey of Community Water Systems* (Washington, DC: Office of Drinking Water, U.S. Environmental Protection Agency, 1987), tables 4-6 and 4-7.

(a) Based on a sample of 434 utilities.
(b) Based on a sample of 209 utilities.
(c) Based on a sample of 18 utilities.
(d) A rate based on water use, varying with amount of water used.
(e) A fee paid monthly, quarterly, or annually, not based on water use.
(f) A constant flat rate per unit of water use.
(g) A charge based on something other than direct water use, such as size of service connection, lot size, etc.
(h) A rate structure not described by any of the above. Many of these are combinations of fees and rates, or different types of rate structures for different customer classes.

# TABLE 2-6

# WATER UTILITY OPERATING DATA BY OWNERSHIP STRUCTURE

| Type of Data | Publicly Owned | Privately Owned | All Systems |
|---|---|---|---|
| | *In cents/1,000 gallons delivered* | | |
| *Revenues by class* | | | |
| Residential | 192.9 | 270.6 | 220.5 |
| Commercial/industrial | 177.9 | 293.2 | 204.3 |
| Wholesale | 126.0 | 201.3 | 135.0 |
| Other | 198.2 | 286.8 | 218.1 |
| *Average revenues for all sales*(a) | 170.3 | 248.6 | 196.2 |
| | *In cents/1,000 gallons produced* | | |
| *Average operating expenses*(b) | 171.3 | 225.8 | 188.0 |
| | *In dollars/1,000 gallons produced* | | |
| *Average gross assets*(c) | 12.5 | 6.8 | 10.5 |

Source: Frederick W. Immerman, *Final Descriptive Summary: 1986 Survey of Community Water Systems* (Washington, DC: Office of Drinking Water, U.S. Environmental Protection Agency, 1987), tables 4-4, 4-5, 4-9, and 5-5.

(a) Based on a sample of 324 publicly owned utilities and 138 privately owned systems.

(b) Based on a sample of 358 publicly-owned utilities and 140 privately owned systems.

(c) Gross assets are defined as gross plant and equipment (before depreciation) divided by average daily production based on a sample of 247 publicly owned utilities and 116 privately owned utilities.

There also is a greater potential for cross-subsidization to cover the costs of publicly owned facilities. This artificially suppresses rates and revenues. In fact, the 1986 data indicate that 8.3 percent of publicly owned systems have "other sources of revenues," and 12.8 percent receive revenues from municipal funds.[8] On average, this subsidy amounts to nearly $73,000 per system, although it is closer to $3,000 to $7,000 for small systems. By contrast, only 6.3 percent of privately owned systems have other sources of income, on average amounting to about $5,000 per system. Chances are that this additional revenue is privately generated as well because private systems have little or no access to government funds.

Figures 2-2, 2-3, and 2-4 display the data for revenues, expenses, and assets for systems according to ownership structure and size of community served. The data reveal that economies of scale for water utilities are substantial. Utilities serving larger populations, and thus producing larger quantities of water, can do so with lower revenues, expenses, and assets per unit of production.

For every population category, privately owned utilities collect more revenues than publicly owned utilities (in cents per 1,000 gallons of water delivered). Often, the differential between these system types is large. Privately owned systems generally incur higher operating expenses (in cents per thousand gallons produced), but not substantially higher than publicly owned systems. For the very largest systems (serving populations greater than one million), revenues and expenses appear fairly comparable between privately and publicly owned systems.

For assets, in particular, it is clear that scale economies are significant when comparing the very small to medium-sized utilities. In the comparison between medium and large utilities, the size advantage appears to be far less substantial. For the very smallest systems, publicly owned systems appear to utilize assets that are valued substantially higher than those of privately owned systems. In the water industry, where fixed costs tend to be high relative to variable costs, the overall financial burden on small systems, and especially private systems, is obviously significant.

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[8] Immerman, *Final Descriptive Summary*, table 4-2.

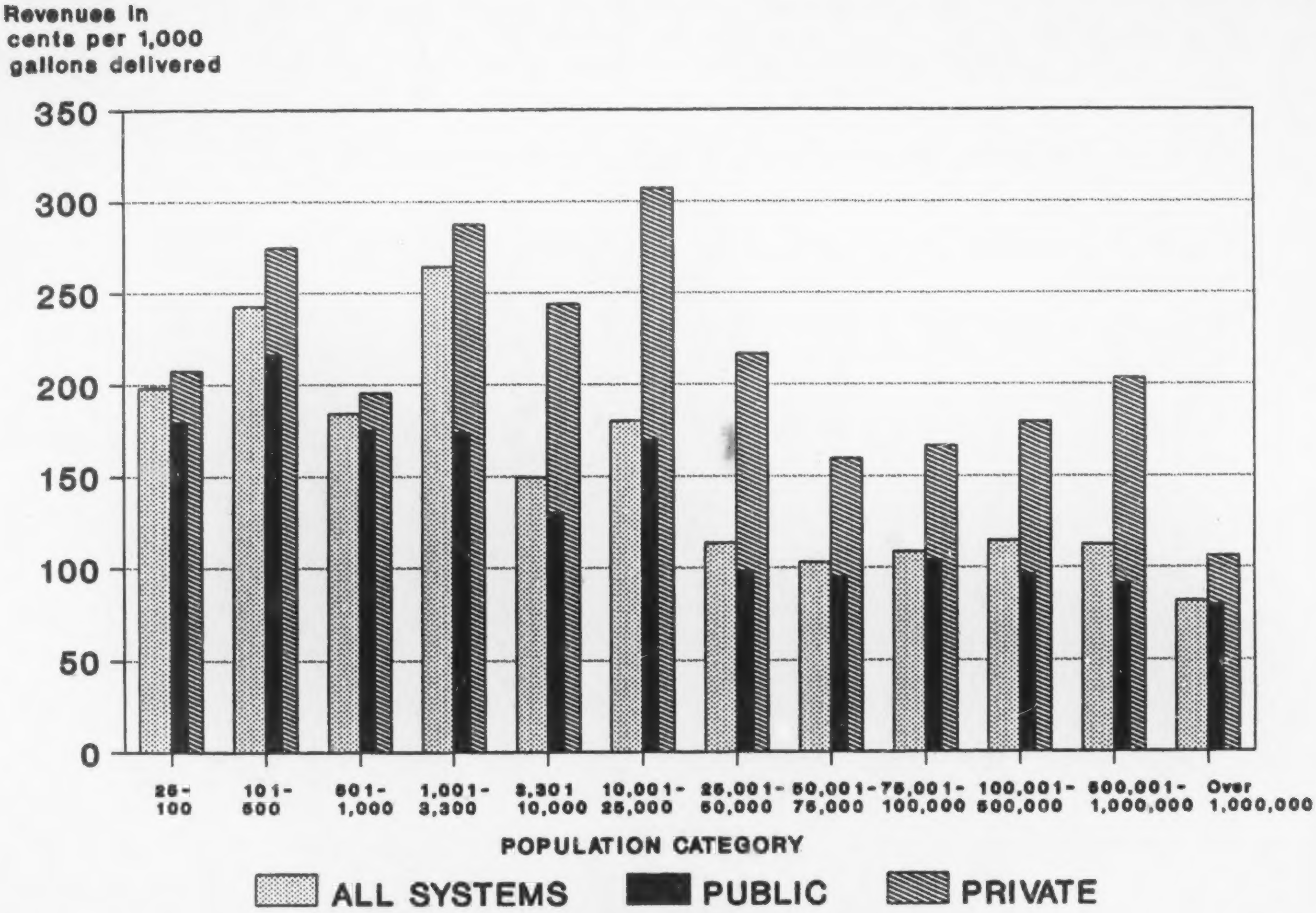

Fig. 2-2. Water utility operating revenues by ownership structure (in cents per 1,000 gallons delivered) as reported in Frederick W. Immerman, *Final Descriptive Summary: 1986 Survey of Community Water Systems* (Washington, DC: Office of Drinking Water, U.S. Environmental Protection Agency, 1987), tables 4-4 and 4-6.

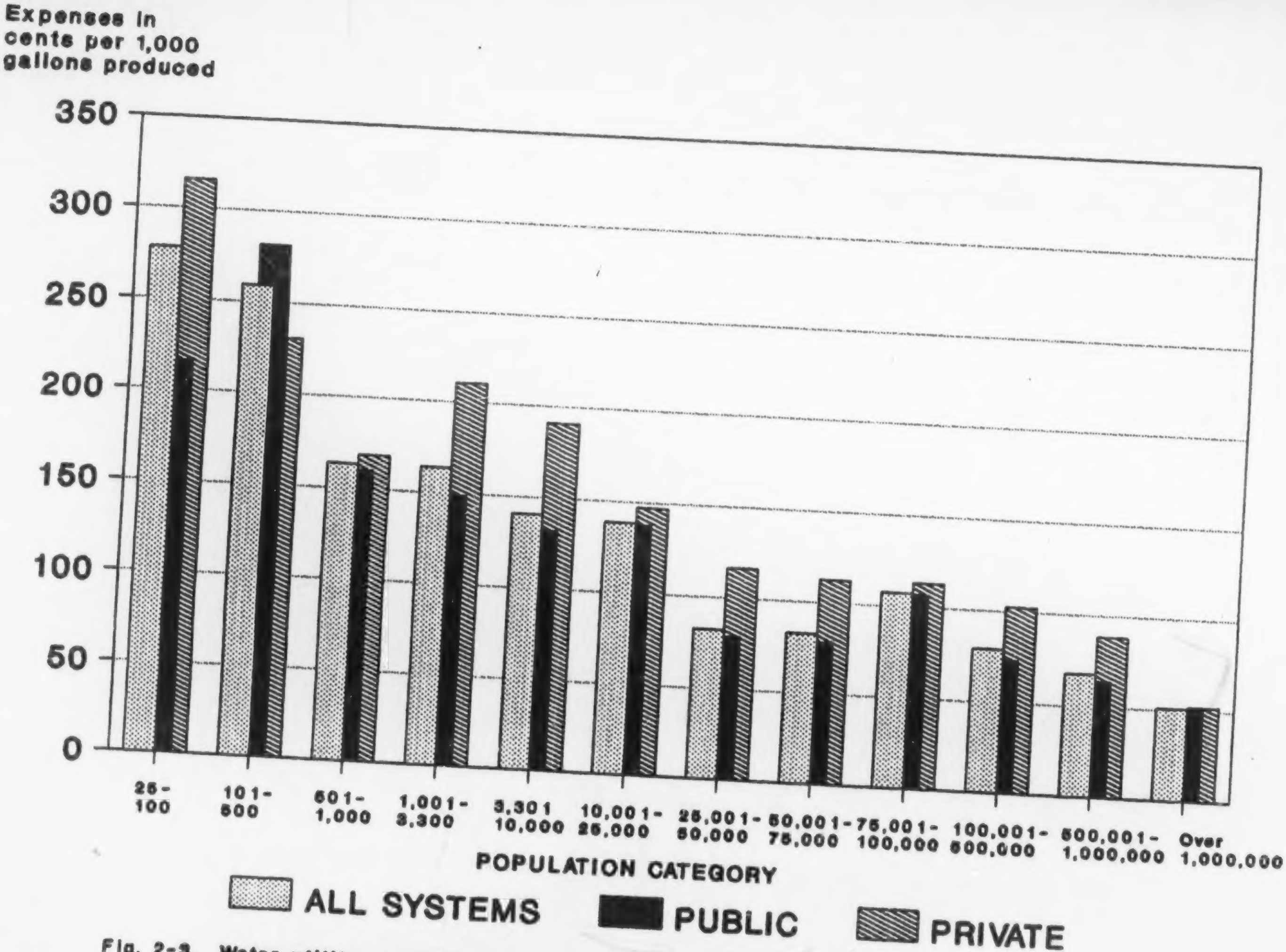

Fig. 2-3. Water utility operating expenses by ownership structure (in cents per 1,000 gallons produced) as reported in Frederick W. Immerman, *Final Descriptive Summary: 1986 Survey of Community Water Systems* (Washington, DC: Office of Drinking Water, U.S. Environmental Protection Agency, 1987), table 4-9.

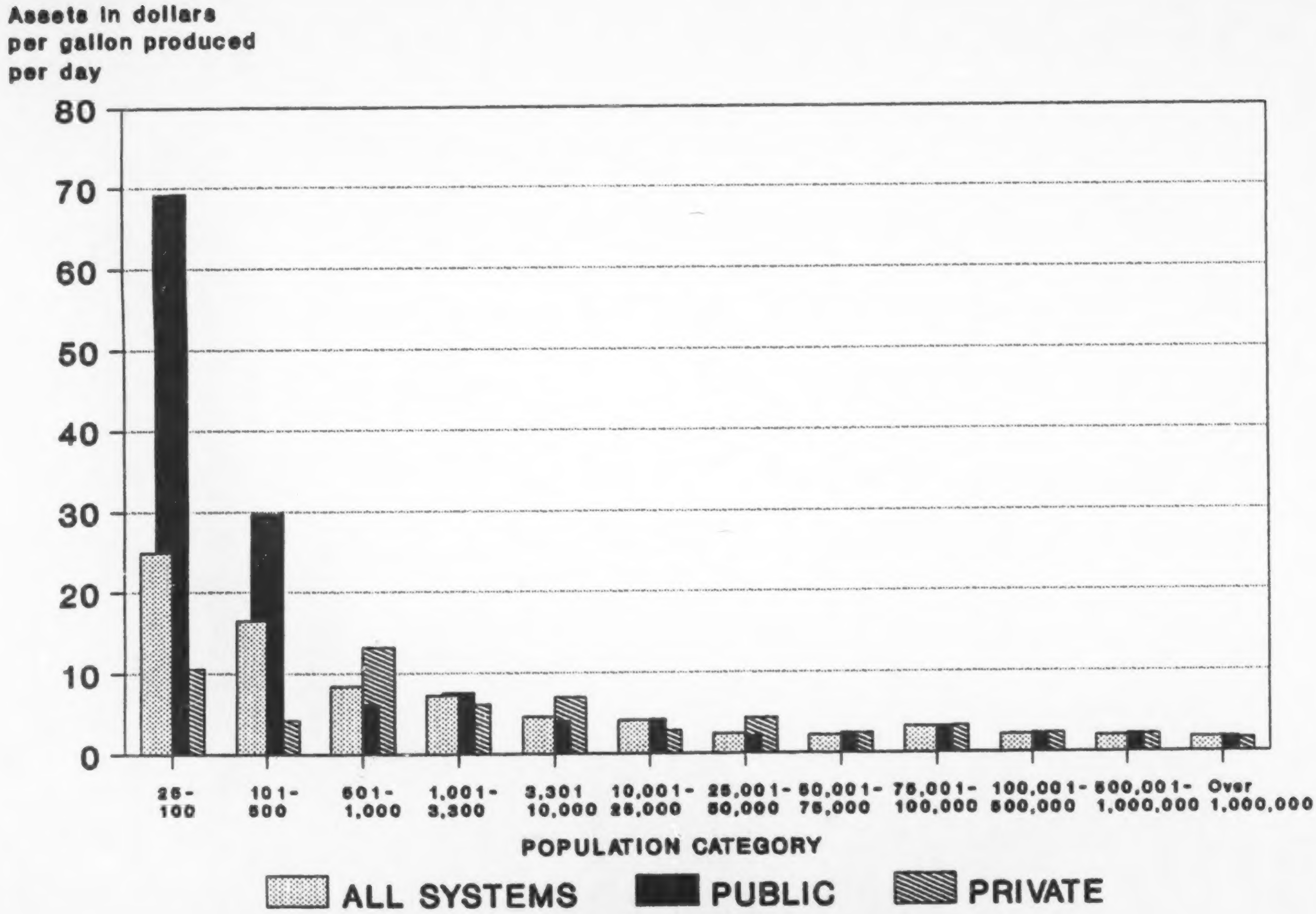

Fig. 2-4. Water Utility gross assets by ownership structure (in dollars per gallons produced per day) as reported in Frederick W. Immerman, *Final Descriptive Summary: 1986 Survey of Community Water Systems* (Washington, DC: Office of Drinking Water, U.S. Environmental Protection Agency, 1987), table 5-5.

## Operating Margins and Profitability

Table 2-7 provides data on the operating margins and profitability of water systems according to ownership and community size. As in the previous presentations, these data are based on the EPA's sample of utilities and may not be representative. Furthermore, validity and reliability are especially problematic for financial data because of the need for careful record keeping and reporting.

Operating margins are calculated by subtracting operating expenses from revenues, and dividing by revenues. Operating expenses include those for operation and maintenance, depreciation, and other expenses excluding debt service and taxes. These data are indicative of the relatively poor financial state of the water industry, particularly for small systems. Interestingly, however, the operating margin for privately owned utilities is generally better than that for publicly owned systems. In fact, for this sample the margin in 1986 for privately owned systems was about 9 percent; for publicly owned systems it was about -5 percent.

Similarly, privately owned systems on average appear to have operated with profits compared with the overall deficit for publicly owned systems. This may be because, by its very nature, private ownership requires a positive operating margin and some measure of profitability, at least over the long run. Publicly owned systems are not motivated by profits or regulated and they clearly benefit from having revenue sources, including municipal funds, that are not derived from water supply operations. This explains, in part, the ability of some publicly owned systems to have negative operating margins.

## Conclusion

The water supply industry in the United States is structured so that many small systems serve a relatively small population and a few systems serve a relatively large population. A profile of the industry reveals that public systems enjoy certain economies of scale. However, from an operational standpoint it is not clear which type of system is more efficient, although privately owned systems seem to be better at keeping revenues and expenses in line. Profit motives or regulation may play a role

## TABLE 2-7

## WATER UTILITY OPERATING MARGINS AND PROFITABILITY BY OWNERSHIP STRUCTURE AND COMMUNITY SIZE, 1986

| Community Size (persons) | Operating Margin(a) | | | Surplus (Profit) or Deficit (Loss) in cents per 1,000 gallons produced | |
|---|---|---|---|---|---|
| | Public | Private | All Systems | Public(b) | Private(c) |
| 25-100 | -24.9% | -30.9% | -28.9% | -113.9 | -10.9 |
| 101-500 | -40.3 | 16.2 | -12.9 | -114.4 | 278.5 |
| 501-1,000 | 14.4 | 20.3 | 16.2 | -329.3 | -38.6 |
| 1,101-3,300 | 8.7 | 21.1 | 11.7 | -1.5 | -22.3 |
| 3,301-10,000 | 6.1 | 10.3 | 6.7 | -40.5 | -76.3 |
| 10,001-25,000 | -32.0 | 33.4 | -26.5 | -9.6 | 1.6 |
| 25,001-50,000 | 27.4 | 43.7 | 29.3 | -48.7 | 48.3 |
| 50,001-75,000 | 17.1 | 12.4 | 16.2 | 5.8 | 13.2 |
| 75,001-100,000 | 27.9 | 41.8 | 28.8 | 7.1 | 26.0 |
| 100,001-500,000 | 18.8 | 41.3 | 23.6 | 5.5 | -5.6 |
| 500,001-1,000,000 | -11.2 | -23.2 | -13.5 | 16.4 | 7.4 |
| Over 1,000,000 | 30.8 | 42.7 | 31.5 | 10.4 | 1.4 |
| Industry average | -5.3 | 9.1 | -0.7 | -75.8 | 72.2 |
| Number of systems(d) | 358 | 154 | 512 | 334 | 109 |

Source: Frederick W. Immerman, *Final Descriptive Summary: 1986 Survey of Community Water Systems* (Washington, DC: Office of Drinking Water, U.S. Environmental Protection Agency, 1987), tables 4-14 and 4-15.

(a) Computed by subtracting operating expenses from revenues, and then dividing by revenues. Only systems that charge directly for water are included in this analysis.

(b) Computed by subtracting operating expenses and debt service from total revenues, then dividing by the total amount of water produced.

(c) Computed by subtracting operating expenses, debt service, and taxes from total revenues, then dividing by the total amount of water produced.

(d) These are the number of systems in the survey sample.

in the positive operating margins and profits demonstrated on average by privately owned systems.

Nonetheless, the data support the fact that very small systems are in the worst shape by a variety of indicators. Economies of scale in the water utility sector (that is, the issue of system size) may be far more important than other structural features of the industry, even ownership, in determining financial viability and operating performance. Appropriate regulatory solutions to industry problems should be designed with this in mind.

## CHAPTER 3

# JURISDICTION OF THE STATE PUBLIC UTILITY COMMISSIONS

A recent survey examining commission regulation of water systems provides a comprehensive picture of the scope and extent of commission jurisdiction over water systems.[1] Such comprehensive data are essential, particularly when considering alternatives to traditional regulation.

As noted earlier, forty-six public utility commissions (including the Virgin Islands Public Service Commission) have the authority to regulate water systems. Eighteen public utility commissions provide criteria for exempting certain water utilities (primarily investor-owned) from regulation. Twenty-eight commissions have adopted procedures to reduce the regulation of investor-owned water systems, which comprise 46 percent of the 9,936 water systems under the jurisdiction of state utility commissions. Municipal systems, water districts, cooperatives, homeowners' associations, and several other types of water systems are regulated by some states.

Several state public utility commissions have unique and complex configurations of authority over water systems. Figure 1-2, for example, depicts the jurisdiction of the Florida Public Service Commission. The Florida Commission regulates investor-owned systems but exempts those serving fewer than 100 persons and does not regulate utility finances. Homeowners' associations are regulated unless all customers are members or unless the developer loses control of the association when 50 percent of the lots are developed. Water resold at the cost of purchased water is not regulated, but resale companies must file annual reports. Landlords providing service to tenants without specific compensation for service are not regulated as water utilities. Finally, county governments regulate water utilities unless they give up this authority to the state.

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[1] Janice A. Beecher and Ann P. Laubach, *1989 Survey on State Commission Regulation of Water and Sewer Systems* (Columbus, OH: The National Regulatory Research Institute, May 1989).

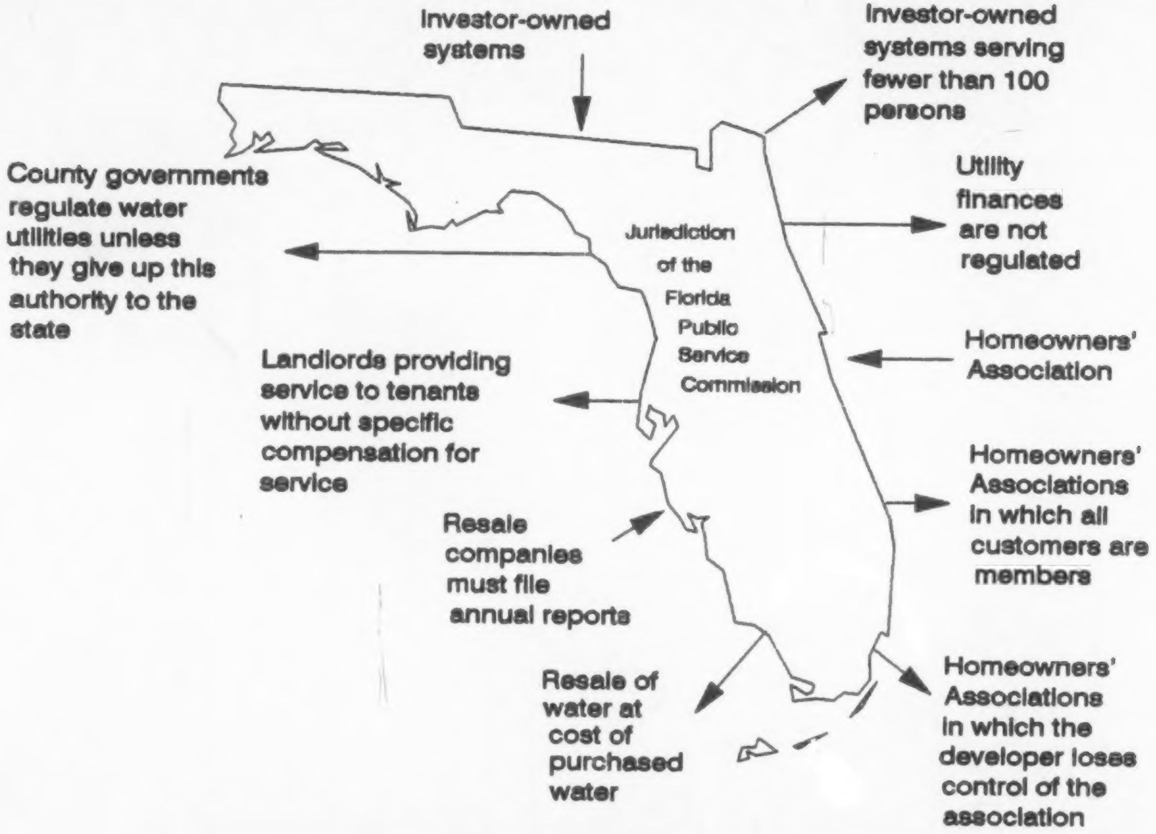
Investor-owned systems
Investor-owned systems serving fewer than 100 persons
County governments regulate water utilities unless they give up this authority to the state
Utility finances are not regulated
Jurisdiction of the Florida Public Service Commission
Homeowners' Association
Landlords providing service to tenants without specific compensation for service
Homeowners' Associations in which all customers are members
Resale companies must file annual reports
Resale of water at cost of purchased water
Homeowners' Associations in which the developer loses control of the association

Fig. 3-1. Florida's regulatory jurisdiction over water utilities as derived from Janice A. Beecher and Ann P. Laubach, *1989 Survey on State Commission Regulation of Water and Sewer Systems* (Columbus, OH: The National Regulatory Research Institute, 1989).

## The NRRI Survey of State Commissions

The National Regulatory Research Institute's 1989 survey on state commission regulation of water and sewer systems covered all forty-six commissions with jurisdiction over water utilities. The survey data cover only the water systems over which state commissions exercise some degree of regulatory authority.[2]

The survey attempted to ascertain how many regulated systems were in the different categories of ownership: investor-owned, municipal, water districts, cooperatives, homeowners' associations, and other types of systems. Ownership and regulatory distinctions are not perfectly consistent across the states. In Florida and Texas, for example, homeowners' associations are regulated as investor-owned utilities. In addition, the survey examined the scope of commission authority in six functional areas:

| | |
|---|---|
| *Certificates:* | Commissions may have the authority to issue or revoke certificates of convenience and necessity (or variations thereof) to water utilities entering a new market, expanding existing service, or constructing new facilities. |
| *Rates:* | Rate regulation is at the core of state utility regulation. It involves determining revenue requirements and rate structure design, which ultimately determines how much customers pay for water service. |
| *Finances:* | Commission regulation may extend to regulating utility finances. This authority may encompass commission approval of debt and equity ratios; the issuance of stocks, bonds, and dividends; as well as specific financial arrangements for system projects. |
| *Ownership:* | Commission approval may be required if a utility seeks a major change in corporate structure or ownership. This authority may involve mergers and acquisitions, diversification, and the transfer of utility assets. |

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[2] For details on the survey method, see Beecher and Laubach, *1989 Survey*. The mailed questionnaire and follow-up telephone interviews were completed in early 1989. However, supplemental telephone surveys on this and other topics were completed in late 1989 and early 1990. These supplemental findings are noted as to their source.

*Complaints:* Commissions may provide a forum for customers to bring complaints against the utility. Complaints may concern areas such as bill discrepancies, disconnection, or service quality. The complaints may be resolved informally or through a formal hearing.

*Reports:* Commission jurisdiction may require the filing of annual or other periodic reports by regulated water systems. These reports may concern financial, operational, or planning data.

The NRRI survey also examined exemptions from regulation for investor-owned water utilities as well as procedures adopted by state commissions for reducing the regulation of water systems.

As indicated in table 3-1, 9,936 water utilities were under the jurisdiction of the state public utility commissions at the time of the survey. Investor-owned systems comprise the largest category, followed by municipal, cooperatives, and water districts. These data, which are reported on a state-by-state basis in appendix A, must be used with caution. For example, Texas regulates homeowners' associations but counts them in the investor-owned category. Also, the number of water systems (and hence the number of regulated water systems) is in constant fluctuation.

Although all forty-six commissions regulate investor-owned systems, far fewer regulate other system types. As seen in table 3-2, only fifteen commissions regulate municipal utilities and none regulates water districts, both of which are considered publicly owned. Sometimes regulation of publicly owned systems is optional. Commissions in Alaska and New Mexico, for example, have jurisdiction only if the municipality seeks regulation. Cooperatives are regulated by thirteen commissions and homeowners' associations are regulated by nine. In some states, these systems are regulated as investor-owned systems.

Seven commissions regulate systems not defined by these general categories, including: regional authorities (Connecticut), conservancy districts (Indiana), water and water/sewer associations (Kentucky), privately owned systems (Michigan), not-for-profits (Ohio), miscellaneous political subdivisions (Texas), and an air conditioning corporation (Virginia). Although there are exceptions, the scope of commission authority over non investor-owned systems generally parallels that for investor-owned systems.

## TABLE 3-1

## NUMBER OF WATER SYSTEMS REGULATED BY THE STATE COMMISSIONS

| Type of System | Number of Commissions Regulating | Number of Systems Regulated | Percent |
|---|---|---|---|
| Investor-owned systems | 46 | 4,527 | 46% |
| Municipal systems | 15 | 2,615 | 26 |
| Water districts | 9 | 1,176 | 12 |
| Cooperatives | 13 | 1,349 | 14 |
| Homeowners' Associations | 9 | 114 | 1 |
| Other systems | 7 | 155 | 2 |
| *Total* | | 9,936 | 101* |

Source: Janice A. Beecher and Ann P. Laubach, *1989 Survey on State Commission Regulation of Water and Sewer Systems* (Columbus, OH: The National Regulatory Research Institute, 1989). See appendix A for details.

* Figures do not add to 100% due to rounding.

## TABLE 3-2

## COMMISSION JURISDICTION OVER WATER SYSTEMS OTHER THAN INVESTOR-OWNED SYSTEMS

| Municipal Systems | Water Districts | Cooperatives | Homeowners' Associations | Other* |
|---|---|---|---|---|
| Alaska | Connecticut | Alaska | Florida | Connecticut |
| Connecticut | Kentucky | Delaware | Michigan | Indiana |
| Indiana | Maine | Indiana | Mississippi | Kentucky |
| Maine | Massachusetts | Kansas | New Jersey | Michigan |
| Maryland | Mississippi | Massachusetts | New Mexico | Ohio |
| Montana | New Mexico | Michigan | New York | Texas |
| New Hampshire | Texas | Mississippi | Texas | Virginia |
| New Jersey | West Virginia | Nevada | West Virginia | |
| New Mexico | Virgin Islands | New Mexico | Virgin Islands | |
| Pennsylvania | | Texas | | |
| Rhode Island | | Vermont | | |
| Texas | | West Virginia | | |
| West Virginia | | Virgin Islands | | |
| Wisconsin | | | | |
| Virgin Islands | | | | |
| 15 Commissions | 9 Commissions | 13 Commissions | 9 Commissions | 7 Commissions |

Source: Janice A. Beecher and Ann P. Laubach, *1989 Survey on State Commission Regulation of Water and Sewer Systems* (Columbus, OH: The National Regulatory Research Institute, 1989). See appendix A for details.

* This category includes: regional authorities (Connecticut), conservancy districts (Indiana), water and water/sewer associations (Kentucky), privately-owned systems (Michigan), not-for-profits (Ohio), miscellaneous political subdivisions (Texas), and an air conditioning corporation (Virginia).

The number of regulated systems varies substantially across the states, as summarized in table 3-3. In 1989, Texas regulated the most water systems (3,734) followed by Mississippi (618), Wisconsin (554), New York (475), Indiana (446), Pennsylvania (430), Arizona (428), West Virginia (406), North Carolina (369), Florida (288), California (248), and Kentucky (218). Twenty-nine states regulated fewer than 100 water systems; twenty states regulated fewer than 50, fourteen states regulated fewer than 25, and seven states regulated fewer than 10 systems.

## The Scope of Commission Authority

In all forty-six states with authority over investor-owned systems, the commissions regulate rates, process consumer complaints, and require periodic financial and operating reports from the investor-owned systems. Not all commissions, however, issue and revoke certificates of convenience and necessity (thirty-six commissions have this authority), approve utility finances (forty commission have this authority), or approve changes in ownership and organizational structure (forty-two commissions have this authority). Appendix A contains information on the scope of commission authority for investor-owned water systems.

Distinctions among the states in terms of the scope of their authority and the way it is exercised are important. Exempting some utilities from regulation and simplifications of procedures are the two principal methods used by commissions to reduce the regulation of water utilities under their jurisdiction.

### Exemption

An important source of variation in state jurisdiction is the use of criteria for exempting water systems from regulation. For investor-owned systems, exemptions sometimes are based on system size, but can also be based on geographic, political, and other criteria. As depicted in table 3-4, eighteen commissions provide some sort of exemption. Of the eighteen, four determine exemptions using size criteria (such as operating revenues, number of customers, or number of service connections) and six use

## TABLE 3-3

## STATES ACCORDING TO NUMBER OF WATER SYSTEMS REGULATED

| Total Number of Systems Regulated | | | | |
|---|---|---|---|---|
| 1-100 Systems | 101-200 Systems | 201-300 Systems | 301-400 Systems | Over 400 Systems |
| Alabama | Louisiana | California | Florida | Arizona |
| Alaska | Massachusetts | Kentucky | North Carolina | Indiana |
| Arkansas | Connecticut | | | Mississippi |
| Colorado | Maine | | | New York |
| Delaware | Montana | | | Pennsylvania |
| Hawaii | | | | Texas |
| Idaho | | | | West Virginia |
| Illinois | | | | Wisconsin |
| Iowa | | | | |
| Kansas | | | | |
| Maryland | | | | |
| Michigan | | | | |
| Missouri | | | | |
| Nevada | | | | |
| New Hampshire | | | | |
| New Jersey | | | | |
| New Mexico | | | | |
| Ohio | | | | |
| Oklahoma | | | | |
| Oregon | | | | |
| Rhode Island | | | | |
| South Carolina | | | | |
| Tennessee | | | | |
| Utah | | | | |
| Vermont | | | | |
| Virginia | | | | |
| Washington | | | | |
| Wyoming | | | | |
| Virgin Islands | | | | |
| 29 Commissions | 5 Commissions | 2 Commissions | 2 Commissions | 8 Commissions |

Source: Janice A. Beecher and Ann P. Laubach, *1989 Survey on State Commission Regulation of Water and Sewer Systems* (Columbus, OH: The National Regulatory Research Institute, 1989). See appendix A for details.

## TABLE 3-4

## STATES EXEMPTING SOME INVESTOR-OWNED WATER UTILITIES FROM REGULATION

| States Using Size Criteria | States Using Other Criteria | States Using Size and Other Criteria | States with No Exemptions |
|---|---|---|---|
| Alaska | Alabama | Connecticut | Arizona |
| Iowa | Arkansas | Florida | California |
| Nevada | Kansas | Louisiana | Colorado |
| Washington | Massachusetts | Michigan | Delaware |
|  | Rhode Island | New Hampshire | Hawaii |
|  | Vermont | North Carolina | Idaho |
|  |  | Oregon | Illinois |
|  |  | Virginia | Indiana |
|  |  |  | Kentucky |
|  |  |  | Maine |
|  |  |  | Maryland |
|  |  |  | Mississippi |
|  |  |  | Missouri |
|  |  |  | Montana |
|  |  |  | New Jersey |
|  |  |  | New Mexico |
|  |  |  | New York |
|  |  |  | Ohio |
|  |  |  | Oklahoma |
|  |  |  | Pennsylvania |
|  |  |  | South Carolina |
|  |  |  | Tennessee |
|  |  |  | Texas |
|  |  |  | Utah |
|  |  |  | West Virginia |
|  |  |  | Wisconsin |
|  |  |  | Wyoming |
|  |  |  | Virgin Islands |
| 4 Commissions | 6 Commissions | 8 Commissions | 28 Commissions |

Source: Janice A. Beecher and Ann P. Laubach, *1989 Survey on State Commission Regulation of Water and Sewer Systems* (Columbus, OH: The National Regulatory Research Institute, 1989). See appendix A for details.

criteria other than size. Kansas, for example, exempts investor-owned systems that essentially serve only one town. Eight commissions specify both a size criterion and some other condition for exempting investor-owned systems from regulation.

Not all "exempt" systems are totally exempt from commission oversight. Five commissions--those in Arkansas, Connecticut, Florida, Michigan, and Virginia--retain some form of authority over exempt investor-owned water systems.[3] Twenty-eight commissions provide no exemptions for regulated investor-owned water systems. Of those that do, some attempt to monitor exempt systems through periodic surveys. Such an opportunity makes it possible to determine whether utilities continue to meet each commission's exemption criteria.

## Simplification

Table 3-5 lists various procedures adopted by state commissions to reduce the regulation of investor-owned water utilities that meet certain criteria. Twenty-eight commissions have adopted at least one simplification method. The most common form is simplified rate filings, which have been implemented by twenty commissions. Twelve commissions have reduced regulation by means of simplified reporting procedures while nine commissions employ simplified hearings.

Ten commissions have adopted additional regulation-reducing measures, such as waiving the need for attorney representation at hearings, providing counseling and assistance to water utilities, and consolidating small water systems. Missouri, for example, is attempting to consolidate the management of several small jurisdictional water systems, Washington assists utilities in tariff preparation, and Indiana requires no formal rate hearing unless at least ten customers formally complain. Eighteen commissions do not have any procedures for reducing the regulation of water systems.

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[3] See appendix A. A few states also try to monitor the exempt systems through periodic surveys.

## TABLE 3-5

## COMMISSION ADOPTION OF SIMPLIFIED PROCEDURES FOR REGULATING WATER UTILITIES

| States Using Simplified Rate Filing | States Using Simplified Hearings or Proceedings | States Using Simplified Reporting | States Using Other Forms of Assistance or Simplification |
|---|---|---|---|
| Arizona | Connecticut | Colorado | Arizona |
| California | Idaho | Connecticut | Missouri |
| Colorado | Indiana | Idaho | New Hampshire |
| Connecticut | Maryland | Illinois | Oklahoma |
| Florida | Mississippi | Maine | Oregon |
| Idaho | Missouri | Missouri | Rhode Island |
| Illinois | New York | New Mexico | Vermont |
| Kentucky | North Carolina | New York | Washington |
| Maryland | Oklahoma | North Carolina | |
| Missouri | Oregon | Oklahoma | |
| Nevada | Rhode Island | Texas | |
| New Mexico | Texas | Wisconsin | |
| New York | | | |
| Ohio | | | |
| Oklahoma | | | |
| Oregon | | | |
| Pennsylvania | | | |
| Rhode Island | | | |
| Texas | | | |
| Virginia | | | |
| Washington | | | |
| West Virginia | | | |
| 22 Commissions | 12 Commissions | 12 Commissions | 8 Commissions |

Source: Janice A. Beecher and Ann P. Laubach, *1989 Survey on State Commission Regulation of Water and Sewer Systems* (Columbus, OH: The National Regulatory Research Institute, 1989). For details, see appendix A.

## Trends in Commission Regulation

An emerging trend appears to favor the adoption of both exemption and simplification strategies by state public utility commissions for water utilities. Whether or not this signals a trend toward deregulation is debatable; these strategies may simply reflect an interest in making commission regulation more efficient and effective.

At first glance, the data displayed in table 3-6 indicate that on the whole, the number of investor-owned utilities regulated by the state commissions increased through the 1980s, although not by much. The same growth trend is apparent for jurisdictional city-owned water utilities. However, it appears that the increase largely can be attributed to the greatly expanded jurisdiction of water utility regulation in Texas, marked by the formation of the Texas Water Commission in 1986. Between 1980 and 1989, the scope of the commission's jurisdiction grew by 519 investor-owned systems and 881 municipal systems.

Texas aside, the number of jurisdictional utilities (investor-owned and municipal) actually decreased over the decade by nearly 400 for investor-owned systems and by over 600 for municipal systems. Significant gains in the number of regulated water systems are apparent in Nevada (35), South Carolina (31), and Florida (28). Some states lost a significant number of systems, including California (98), New York (91), and Arizona (47), although all three states continued to regulate many water systems. Iowa lost more than half of its regulated utilities, a decline from 123 to 60.

Overall, for investor-owned systems, twenty-eight commissions lost systems, fourteen gained systems, and four experienced no change. Among municipal systems, nine commissions lost and seven gained.[4] Although not conclusive because of the difficulty in obtaining reliable data and the substantial variability among the states, the data may indicate either a consolidation trend in the water industry, a reduction in jurisdiction, or both. Regardless of the cause, a reduction in the number of jurisdictional water utilities is the result.

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[4] Kentucky had 184 jurisdictional municipal systems in 1980, but none in 1989.

## TABLE 3-6

## COMMISSION-REGULATED WATER SYSTEMS BY TYPE OF SYSTEM OVER TIME

| | Investor-Owned Utilities | | | Municipal Utilities | | |
|---|---|---|---|---|---|---|
| State | 1980 | 1989 | Change | 1980 | 1989 | Change |
| Alabama | 17 | 12 | -5 | - | - | - |
| Alaska | 24 | 25 | +1 | 34 | 2 | -32 |
| Arizona | 475 | 428 | -47 | - | - | - |
| Arkansas | 12 | 2 | -10 | - | - | - |
| California | 346 | 248 | -98 | - | - | - |
| Colorado | 12 | 9 | -3 | - | - | - |
| Connecticut(a) | 106 | 101 | -5 | - | 42 | +42 |
| Delaware | 14 | 17 | +3 | - | - | - |
| Florida | 260 | 288 | +28 | - | - | - |
| Hawaii | 8 | 11 | +3 | - | - | - |
| Idaho | 22 | 25 | +3 | - | - | - |
| Illinois | 73 | 71 | -2 | - | - | - |
| Indiana | 123 | 60 | -63 | 360 | 277 | -83 |
| Iowa | 22 | 2 | -20 | - | - | - |
| Kansas | 7 | 7 | 0 | 0 | - | - |
| Kentucky | 46 | 36 | -10 | 184 | - | -184 |
| Louisiana | 144 | 135 | -9 | - | - | - |
| Maine | 61 | 38 | -23 | 90 | 28 | -62 |
| Maryland | 60 | 34 | -26 | 0 | 0 | - |
| Massachusetts | 51 | 43 | - 8 | - | - | - |
| Michigan | 18 | 2 | -16 | - | - | - |
| Mississippi | 108 | 74 | -34 | 45 | - | -45 |
| Missouri | 75 | 75 | 0 | - | - | - |
| Montana | 27 | 32 | +5 | 107 | 126 | +19 |
| Nevada | 13 | 48 | +35 | - | - | - |
| New Hampshire(a) | 31 | 41 | +10 | 11 | 13 | +2 |
| New Jersey | 88 | 58 | -30 | 182 | 15 | -167 |
| New Mexico | 30 | 39 | + 9 | 3 | 0 | -3 |
| New York(b) | 491 | 400 | -91 | - | - | - |
| North Carolina | 343 | 369 | +26 | - | - | - |

TABLE 3-6--*continued*

| State | Investor-Owned Utilities | | | Municipal Utilities | | |
|---|---|---|---|---|---|---|
| | 1980 | 1989 | Change | 1980 | 1989 | Change |
| Ohio | 42 | 35 | -7 | - | - | - |
| Oklahoma | 46 | 32 | -14 | - | - | - |
| Oregon | 25 | 17 | - 8 | - | - | - |
| Pennsylvania | 345 | 357 | +12 | 86 | 73 | -13 |
| Rhode Island | 8 | 2 | -6 | 4 | 7 | +3 |
| South Carolina | 52 | 83 | +31 | - | - | - |
| Tennessee | 13 | 9 | -4 | - | - | - |
| Texas | 445 | 964 | +519 | 448 | 1,329 | +881 |
| Utah | 18 | 18 | 0 | - | - | - |
| Vermont(a) | 71 | 75 | +4 | - | - | - |
| Virginia | 73 | 65 | -8 | - | - | - |
| Washington | 55 | 61 | +6 | - | - | - |
| West Virginia | 70 | 54 | -16 | 256 | 158 | -98 |
| Wisconsin | 15 | 10 | -5 | 541 | 544 | +3 |
| Wyoming | 17 | 15 | -2 | - | - | - |
| Virgin Islands | 1 | 0 | -1 | 0 | 1 | +1 |
| Totals *with Texas* | 4,396 | 4,527 | +134 | 2,351 | 2,615 | +264 |
| Totals *without Texas* | 3,951 | 3,563 | -385 | 1,903 | 1,286 | -617 |

Source: National Association of Regulatory Utility Commissioners, *1980 Annual Report on Utility and Carrier Regulation* (Washington, DC: National Association of Regulatory Utility Commissioners, 1982) and Janice A. Beecher and Ann P. Laubach, *1989 Survey on Commission Regulation of Water and Sewer Systems* (Columbus, OH: The National Regulatory Research Institute, 1989).

- Indicates not applicable; counted as zero.

(a) The 1989 totals for investor-owned systems are approximations.
(b) In 1980, New York was in the process of removing 45 homeowners' associations from its jurisdiction.

Another indicator of trends in water utility regulation can be found in the number of rate cases decided by commissions, as reported in Table 3-7. Of course, these figures are only illustrative and must be used with great caution because there is no guarantee that they are representative. Although the number of jurisdictional water utilities may have declined over the decade, the number of rate cases has not necessarily fallen as well. Without data for the intermediate years one cannot conclude that this is a genuine trend.

Still, the higher number of rate cases is consistent with the idea that water utility regulation is placing increasing demands on the commissions, even though the number of jurisdictional utilities has not increased (Texas excluded). Also, rate cases constitute only one type of commission proceeding. Anecdotal information suggests that commissions today are experiencing more water utility cases of all varieties and cases of greater complexity than in the past. Urban development and growth, financial issues, and the effects of safe drinking water regulations appear to be the leading causes of this complexity.

Table 3-8 presents state data on the 627 certification cases heard by the commissions in 1989. In eleven states the commissions do not have certification authority. In Delaware, for example, permission to operate is granted by another state agency but commission approval of initial rates and service conditions is required. Subsequently, the commission regulates the rate changes, finances, and so on. Of the remaining commissions, about two-thirds heard few or no certification cases in 1989. The others resolved a signficant number of these cases. Not surprisingly, there were numerous certification cases in Texas (152 cases), although Mississippi (100 cases) and Florida (75 cases) were not far behind. These data are helpful in identifying the states in which the proliferation of water systems is affecting the commissions. The creation of new systems itself creates work and unless it is matched by the removal of other systems from commission jurisdiction, it will create ongoing work in all other areas of regulation.

As water issues become more prominent on the regulatory agenda, there is reason to believe that various types of commission proceedings--including rate cases, finance and ownership approvals, certifications, and complaints--will be on the rise. The interest in regulatory alternatives, including deregulation, may be related to these trends.

## TABLE 3-7

## APPROXIMATE NUMBER OF WATER UTILITY RATE CASES AT EACH COMMISSION, 1980 AND 1989

| | Number of Rate Cases | | | | Number of Rate Cases | | |
|---|---|---|---|---|---|---|---|
| State | 1980 | 1989 | Change | State | 1980 | 1989 | Change |
| Alabama | - | 2 | +2 | New Hampshire | 6 | 4 | -2 |
| Alaska | 5 | 0 | -5 | New Jersey | 17 | 17 | 0 |
| Arizona | - | 36 | +36 | New Mexico | 8 | 4 | -4 |
| Arkansas | 4 | 0 | -4 | New York | 60 | 100 | +40 |
| California | - | 19 | +19 | North Carolina | 38 | 32 | -6 |
| Colorado | 1 | 1 | 0 | Ohio | 8 | 2 | -6 |
| Connecticut | 3 | 45 | +43 | Oklahoma | 1 | 8 | +7 |
| Delaware | 2 | 3 | +1 | Oregon | 7 | 3 | -4 |
| Florida | 15 | 30 | +15 | Pennsylvania | 141 | 57 | -84 |
| Hawaii | - | 1 | +1 | Rhode Island | 3 | 2 | -1 |
| Idaho | 2 | 5 | +3 | South Carolina | 5 | 11 | +6 |
| Illinois | 13 | 15 | +2 | Tennessee | 2 | 2 | 0 |
| Indiana | 86 | 50 | -36 | Texas | 37 | 106 | +69 |
| Iowa | 4 | 0 | -4 | Utah | - | 1 | +1 |
| Kansas | 2 | 3 | +1 | Vermont | - | 10 | +10 |
| Kentucky | 2 | 58 | +56 | Virginia | 15 | 29 | +14 |
| Louisiana | 15 | 12 | -3 | Washington | - | 15 | +15 |
| Maine | 37 | 12 | -25 | West Virginia | 12 | 35 | +23 |
| Maryland | 9 | 7 | -2 | Wisconsin | 4 | 80 | +76 |
| Massachusetts | - | 7 | +7 | Wyoming | - | 1 | +1 |
| Michigan | - | 2 | +2 | Virgin Islands | - | 0 | 0 |
| Mississippi | - | 60 | +60 | | | | |
| Missouri | 4 | 21 | +17 | | | | |
| Montana | - | 12 | +12 | *Totals* | 568 | 924 | +356 |
| Nevada | - | 4 | +4 | | | | |

Source: National Association of Regulatory Utility Commissioners, *1980 Annual Report on Utility and Carrier Regulation* (Washington, DC: National Association of Regulatory Utility Commissioners, 1982) and telephone survey of state commissions, January 1990.

- None indicated; counted as zero.

## TABLE 3-8

## APPROXIMATE NUMBER OF WATER UTILITY CERTIFICATION CASES AT EACH COMMISSION, 1989

| State | Number of Cases | State | Number of Cases |
|---|---|---|---|
| Alabama | 0 | New Hampshire | na |
| Alaska | 0 | New Jersey | na |
| Arizona | 5 | New Mexico | 4 |
| Arkansas | 0 | New York | na |
| California | 0 | North Carolina | 20 |
| Colorado | 0 | Ohio | 3 |
| Connecticut | 20 | Oklahoma | na |
| Delaware | na | Oregon | na |
| Florida | 75 | Pennsylvania | 25 |
| Hawaii | 0 | Rhode Island | 0 |
| Idaho | 1 | South Carolina | 3 |
| Illinois | 15 | Tennessee | 0 |
| Indiana | 50 | Texas | 152 |
| Iowa | 0 | Utah | 1 |
| Kansas | 1 | Vermont | 1 |
| Kentucky | 35 | Virginia | 1 |
| Louisiana | na | Washington | na |
| Maine | 0 | West Virginia | 37 |
| Maryland | 6 | Wisconsin | 65 |
| Massachusetts | na | Wyoming | 0 |
| Michigan | 1 | Virgin Islands | na |
| Mississippi | 100 | | |
| Missouri | 5 | | |
| Montana | na | *Total* | 627 |
| Nevada | 1 | | |

Source: Telephone survey of state commissions, January 1990. Supplements *1989 Survey on State Commission Regulation of Water and Sewer Systems*.

na Indicates that the commission did not have authority to issue certificates of convenience and necessity to water utilities.

Finally, the number of full-time equivalent staff working on water utility issues is indicated in table 3-9. These figures usually represent water utility analysts found in the commissions' public utility divisions. Because for many commissions the data exclude staff in other organizational divisions (such as administrative law judges and complaint processors), the commission effort in water regulation is certainly understated.[5] Also, because commission staff are organized differently and perform different regulatory functions, it is inappropriate to overemphasize comparisons among states.

The figures indicate that a few state commissions--California, Florida, New York, and Texas--stand out in terms of the number of staff devoted to water utility regulation. Others have but a few individuals concentrating on water. Obviously, these figures appear to correlate roughly with the number of jurisdictional water utilities and the scope of commission authority. On the whole, however, the regulatory effort in water is not large relative to what would be found in the other regulatory areas (that is, electricity, gas, and telecommunications). Nationally, nearly 370 staff members were performing this function as of the early days of 1990.

## Conclusion

The jurisdiction of the state public utility commissions is varied and sometimes complex. State authority is especially concentrated in the areas of rates, complaints, and reports. Exemption and simplification are used by commissions to expedite water utility regulation, particularly for small systems. It is difficult to estimate the number of full-time equivalent staff members working in water at the state commissions. However, the apparently small number of staff in some states may be significant, especially in light of an apparently increasing water utility caseload.

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[5] The definition of staff was loosely defined to facilitate responses to the survey; in some cases, the survey respondents could not provide a reliable estimate of staff working on water utility regulation but located in organizational divisions other than their own.

## TABLE 3-9

## APPROXIMATE SIZE OF WATER UTILITY STAFF AT EACH COMMISSION, 1990

| State | Staff Size* | State | Staff Size* |
|---|---|---|---|
| Alabama | 2 | New Hampshire | 4 |
| Alaska | 1 | New Jersey | 26 |
| Arizona | 15 | New Mexico | 10 |
| Arkansas | 1 | New York | 35 |
| California | 50 | North Carolina | 8 |
| Colorado | .5 | Ohio | 2 |
| Connecticut | 14 | Oklahoma | 2 |
| Delaware | 3 | Oregon | 1.5 |
| Florida | 47 | Pennsylvania | 20 |
| Hawaii | 2 | Rhode Island | 1.5 |
| Idaho | 1.5 | South Carolina | 5 |
| Illinois | 6 | Tennessee | 0 |
| Indiana | 4 | Texas | 23 |
| Iowa | 0 | Utah | 1 |
| Kansas | 0.5 | Vermont | 3 |
| Kentucky | 8 | Virginia | 2 |
| Louisiana | 1 | Washington | 9 |
| Maine | 5 | West Virginia | 15 |
| Maryland | 1.3 | Wisconsin | 10 |
| Massachusetts | 1.5 | Wyoming | 1 |
| Michigan | 0 | Virgin Islands | 0 |
| Mississippi | 5 | | |
| Missouri | 12 | | |
| Montana | 1 | *Total* | 367.3 |
| Nevada | 6 | | |

Source: Telephone survey of state commissions, January 1990. Supplements *1989 Survey on State Commission Regulation of Water and Sewer Systems*.

* Estimated full-time equivalent. These figures may not represent ancillary staff, such as administrative law judges or hearing examiners, and consumer services staff who process complaints. Thus, they may significantly underestimate commission staff devoted to water utility regulation.

Commission jurisdiction and resources, of course, are intrinsically related--and both pertain to issues of deregulation and regulatory alternatives. Should demands on regulators of water utilities increase, and there is reason to believe this may happen, commissions may need to make adjustments.

One response is to increase the number of staff devoted to water utility regulation. Another is to reduce the scope of regulation so that existing staff can perform more effectively. Still another is to explore regulatory alternatives, some of which would alter jurisdiction, resources, or both. How commissions respond may hinge on practical concerns (such as access to additional resources) as well as philosophical ones (such as a strong belief in a particular regulatory option). In any case, the potential tradeoffs should not be taken lightly if the public interest is to continue to be served.

# CHAPTER 4

# EXPERIENCES WITH AND EXPECTATIONS ABOUT WATER UTILITY DEREGULATION

There are no systematic and reliable data readily available for analyzing the effects of water utility deregulation. The limited information that can be found is usually anecdotal and not easily generalized. However, based on secondary data sources as well as the perceptions of commission staff experts, it is possible to speculate about deregulation's effects. This chapter considers deregulation in the context of the six named functional areas in which most regulatory authority is concentrated--certificates, rates, finances, ownership, complaints, and reports. Also examined are the anticipated effects of deregulation on commission resources and a summary of commission staff perspectives.

## Deregulation and Regulatory Functions

### Certificates

Commissions may have the authority to issue or revoke certificates of convenience and necessity (or variations thereof) to water utilities entering a new market, expanding existing service, or constructing new facilities. Thirty-five commissions have certification authority over investor-owned water utilities. Under some forms of deregulation, this fundamental regulatory function could be surrendered.

As was reported in chapter 3, the number of jurisdictional water utilities (investor-owned and municipal) increased somewhat between 1980 and 1989, but when Texas is excluded from the analysis, the number of regulated utilities actually decreased. One cannot tell from the data whether large numbers of new utilities are being certified. Anecdotal data from NRRI surveys suggests that this is not the case. Thus it should not be presumed that the certification function imposes a substantial burden on regulators.

The advantages of certification are several. It affords regulatory commissions an opportunity to evaluate the market for which service is contemplated and the best possible way to provide it. By granting an exclusive right to provide service in a given market, certification helps prevent inefficient duplication of service by more than one water utility.[1] Certification proceedings also allow regulators the opportunity to evaluate the fitness of the applicant to provide service. This is especially important because of the many financial and regulatory pressures on water systems. Certification of expansion into new markets allows regulators to impose a degree of control on the process of utility growth, and should force the consideration of appropriate alternatives. Certification of new facilities encourages planning and justification before expenditures are made having lasting effects on customer service and water rates. Finally, certification of water providers and facilities by a central state regulatory agency may be less politicized than local decisionmaking.

Public utility commissions and federal and state drinking water regulators seem to share an interest in what is sometimes called the nonproliferation of small water systems. Small systems, as discussed in chapter 1, are frequently the focus of attention when considering the problems of the water utility industry. Small systems create burdens for regulators and, in turn, regulations often are a burden on small systems that typically lack the resources to comply with regulations.

Certification is the method by which economic regulators can control market entry for water systems and, if appropriate, preclude the creation of some new systems. Preclusion is a preventive measure that addresses many of the regulatory problems that emerge later, when it may be too late to formulate effective solutions. As these regulatory problems become more complicated, more and more regulators may ask why the creation of so many small systems was allowed in the first place. Furthermore, some commissions may have opportunities to revoke the certificates of utilities with extremely poor performance records. However, this option must be exercised with extreme care given the ratepayer impacts of service abandonment.

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[1] The water service franchise, of course, is not identical to an operating license which water suppliers must obtain from a state drinking water administrator or environmental protection agency. Also, a utility franchise does not preclude competition or bypass which occurs, for example, when customers purchase bottled water or operate individual wells.

On the whole, certification cases may be quite manageable in states where they occur with relative infrequency. The several states that have a significant number of certification cases may want to explore ways to expedite the process or seek alternatives for these forms of regulation. And all commissions may want to coordinate water utility certification with their state's agency responsible for granting operating permits and enforcing compliance with drinking water standards. Such coordination provides a check on some water utilities that may not otherwise realize they are subject to commission regulation. Regardless, giving up the certification function should not be casually done as it is so fundamentally related to the structure of the water industry and effective oversight.

## Rates

Like certification, rate regulation is a central feature of state public utility regulation. It involves determining revenue requirements and rate structure design, which ultimately determines how much customers pay for water service. All forty-six commissions regulating investor-owned water utilities regulate the rates of those utilities. Commissions and regulated industries spend substantial resources on the rate regulation function. Data presented in chapter 3 indicate that commissions heard significantly more rate cases in 1989 than they did in 1980, despite the fact that there were fewer jurisdictional utilities (excluding Texas utilities from the totals).

Rate structures and revenues of publicly owned, privately owned, and ancillary systems were compared in chapter 2. Although the differences are not particularly striking, a higher percentage of publicly owned systems use variable rates (which vary with the amount of water use) as compared to flat fees. While 19.5 percent of publicly owned systems use flat fees, 34.8 percent of privately owned systems use flat fees. Assuming that many of the privately owned systems are regulated, the data do not support the idea that regulation has diminished the use of flat fees relative to their use in the public sector.

A comparison of revenues (in cents per thousand gallons delivered, as also reported in chapter 2) revealed that privately owned systems collect substantially more revenues per unit of water than do publicly owned systems. This finding is expected in light of the higher expenses (especially taxes) that must be borne by private firms and economies of scale (more publicly owned systems are larger in size). Higher revenues, of course, have a positive effect on the financial well-being of private utilities. Based on operating margins and profits and losses, privately owned systems appear to be generally healthier than publicly owned systems.

A rate comparison between regulated and nonregulated water utilities is difficult, if not impossible, due to the lack of available data.[2] Even if a data source was readily available, it would likely suffer from problems of reliability, as is often the case in compiling this type of information. Further, comparing rates is almost always confounded by the different circumstances of the utilities being compared because so many mitigating variables (size, ownership, location, finances, taxes, and so on) are difficult to control in the analysis. Even an analysis of one firm over time would be difficult given the many factors that may affect it. Generalizing from the results of such an analysis would be difficult.

These caveats aside, one possibility for exploring the effects of regulation on rates is to compare rates in states regulating both investor-owned utilities and municipal utilities with those in states regulating only investor-owned utilities. This type of comparison is presented in table 4-1 using available rate data from 1981 for selected states.[3] The ratio of average municipal rates to average investor-owned utility rates is presented for four rate categories. On average, there may be a tendency for municipal rates to be lower relative to investor-owned rates in states that regulate both types of utilities. In the three states examined here, only two of ten ratios exceed 0.65; the average ratio is 0.61. In the three states examined that only regulate investor-owned utilities, ten of twelve ratios exceed 0.65, and the average ratio is 1.09.

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[2] Statistical publications of the U.S. Environmental Protection Agency, the American Water Works Association, and the National Association of Water Companies were consulted but did not yield suitable data.

[3] Although limited, these were the best available data.

## TABLE 4-1

## RATE COMPARISON BY OWNERSHIP STRUCTURE FOR SELECTED STATES, 1981

| State | Utilities | Average Water Rate 3,750 Gal./Mo. | 7,500 Gal./Mo. | 75,000 Gal./Mo. | 750,000 Gal./Mo. |
|---|---|---|---|---|---|
| *States regulating rates of investor-owned systems (IOU) and municipal systems (MOU)* | | | | | |
| Indiana | 1 MOU | $ 4.73 | $ 8.91 | $62.44 | $ 405.05 |
| | 1 IOU | 9.06 | 16.83 | 106.51 | 1,254.06 |
| | **MOU/IOU** | .52 | .53 | .59 | .32 |
| Maine | 6 MOUs | $ 6.01 | $14.83 | $76.86 | $361.72 |
| | 7 IOUs | 12.04 | 12.38 | 118.94 | 577.94 |
| | **MOU/IOU** | .50 | 1.20 | .65 | .63 |
| Rhode Island | 1 MOU | $ 2.47 | 14.91 | | |
| | 1 IOU | 8.39 | 17.95 | *(not available)* | |
| | **MOU/IOU** | .29 | .83 | | |
| *States regulating rates of investor-owned systems (IOU)* | | | | | |
| Connecticut | 10 MOUs | $ 9.02 | $11.89 | $86.62 | $782.18 |
| | 7 IOUs | 6.22 | 9.98 | 62.94 | 411.33 |
| | **MOU/IOU** | 1.45 | 1.19 | 1.38 | 1.90 |
| Florida | 42 MOUs | $ 4.68 | $ 7.59 | $ 56.94 | $535.50 |
| | 8 IOUs | 6.83 | 9.89 | 87.27 | 902.87 |
| | **MOU/IOU** | .69 | .77 | .65 | .59 |
| Missouri | 23 MOUs | $ 7.13 | $12.59 | $82.79 | $772.34 |
| | 6 IOUs | 5.81 | 10.43 | 85.54 | 721.69 |
| | **MOU/IOU** | 1.23 | 1.21 | .97 | 1.07 |

Source: Authors' calculations using data from American Water Works Association, *1981 Water Utility Operating Data*. (Denver, CO: American Water Works Association, 1981).

It may be speculated that commission regulation of municipal utilities may help keep rates lower than when regulation is absent. This is the basic assumption of so-called "yardstick regulation." Regulation may encourage the more efficient use of the utility's resources and discourage non-cost-based ratemaking that may be more likely in a politicized local process.

Because it is so central to economic regulation, abandoning rate regulation would represent a major change in regulatory philosophy. If rate regulation is an effective tool for improving efficiencies in water supply, it may not be prudent to give it up simply to improve efficiencies within regulatory agencies. A common concern for the water supply industry is that rate structures are often outdated and inadequate, and that utilities are in a poor financial state as a result. Implementing effective rate regulation can help alleviate these problems, send better price signals to consumers about the value of water supply, and improve the financial health of the industry. Eliminating rate regulation altogether would leave these issues to market forces, perhaps with less orderly and predictable results.

However, if it can be shown that rate regulation is not effective in addressing these concerns and that market forces will produce adequate rate structures, it would make sense to explore alternatives to rate regulation because it is a costly process for regulators and regulated utilities. It is especially burdensome because of the generally poor record-keeping practices of some smaller water utilities and the limited assistance available to them for preparing rate filings. One regulatory alternative, detariffing, would allow commissions to discontinue rate regulation while still playing a role in such areas as processing consumer complaints and requiring periodic reports from the utilities. Detariffing, accompanied by other tools of regulatory oversight, might allow commissions to retain jurisdiction and monitor the effects of experimentally removing rate regulation.

State commissions also may want to experiment with variations on rate of return regulation, particularly alternatives that streamline the process. (See chapter 5.) Thus far, there appear to be no systematic data for anticipating the results of deregulation or regulatory alternatives. Certainly rate regulation is an area where more data are needed to assess deregulation's potential effects.

## Finances

Commission regulation may extend to regulating utility finances. This authority may encompass commission approval of debt and equity ratios; the issuance of stocks, bonds, and dividends; as well as specific financial arrangements for system projects. Forty state commissions regulate the finances of their jurisdictional investor-owned water utilities to some degree.

Financial viability is a fundamental regulatory issue, in part because so many other issues--nonproliferation, rate structure adequacy, Safe Drinking Water Act (SDWA) compliance--either aggravate or are aggravated by the financial condition of water systems. Small systems, in particular, tend to have a poor financial profile.

The National Association of Water Companies publishes annual financial data for the investor-owned water utility industry, reported according to systems size.[4] A summary of operating and financial data for nine very small water utilities (Class D, gross revenues $50,000 or less) and twenty-four small water utilities (Class C, gross revenues $50,000 to $250,000) is presented in table 4-2. The data indicate that operating costs constitute a substantially higher proportion of operating revenues for the very small utilities (88 percent) than for the small utilities (68 percent). The higher costs experienced by the very small utilities as compared to the lower costs of the small utilities can be partially attributed to economies of scale.

Taken together, the very small utilities experienced an average operating loss of 11 percent and a net loss of 55 percent (which takes into account nonoperating income less total income deductions). The small utilities experienced an average operating profit of only 2 percent and a net profit of only 6 percent. By comparison, utility operating income for all class A-1 to D companies in the sample was 22.75 percent and net income was 13.6 percent. The debt portion of utility assets is substantially higher for the very small systems (89 percent) than for the small systems

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[4] National Association of Water Companies, *1988 Financial Summary for Investor-Owned Water Utilities* (Washington, DC: National Association of Water Companies).

## TABLE 4-2

## OPERATING AND FINANCIAL DATA FOR VERY SMALL AND SMALL PRIVATE WATER UTILITIES

| | Very Small(a) | | Small(b) | |
|---|---|---|---|---|
| Characteristic | Number | Percent | Number | Percent |
| *Operating Data* | | | | |
| Total number of companies | 9 | -- | 24 | -- |
| Total communities served | 9 | -- | 35 | -- |
| Ave. population served | 491 | -- | 1,234 | -- |
| Ave. miles of main | 2 | -- | 10 | -- |
| Ave. water sold (mil. gal.) | 6 | -- | 73 | -- |
| Ave. number of employees | 1 | -- | 2 | -- |
| Ave. total payroll | $ 7,661 | -- | $23,401 | -- |
| *Income Statement Data* (*Averages*) | | | | |
| Operating revenues | $17,822 | 100 | $113,687 | 100% |
| Total operating expense | 19,704 | 111 | 111,138 | 98 |
| Operating & maintenance expense | 15,599 | 88 | 77,479 | 68 |
| Depreciation expense | 2,753 | 15 | 14,946 | 13 |
| Taxes and other expense | 1,352 | 8 | 18,713 | 16 |
| Operating income | ($1,882) | -11% | $2,549 | 2% |
| Net income(c) | ($9,739) | -55% | $6,928 | 6% |
| *Balance Sheet Data* (*Averages*) | | | | |
| Total assets | $93,327 | 100% | $439,200 | 100% |
| Total equity | 9,902 | 11 | 143,754 | 33 |
| Total liabilities | 83,425 | 89 | 295,446 | 67 |
| *Shareholder Data* (*Averages*) | | | | |
| Common stock shareholders | 1 | -- | 27 | -- |
| Outstanding shares | 156 | -- | 4,504 | -- |

Source: National Association of Water Companies, *1988 Financial Summary for Investor-Owned Water Utilities* (Washington, DC: National Association of Water Companies), 17 and 18.

(a) Gross revenues $50,000 or less (Class D).
(b) Gross revenues $50,000 to $250,000 (Class C).
(c) Operating income plus nonoperating income less total income deductions.

(67 percent), the latter of which is the same as the average for all systems in the sample. The very small utilities generally have only one common stock shareholder (the owner-operator) compared with an average of twenty-seven shareholders for the small systems.

Though the data are limited to only nine firms, they clearly are consistent with the view that the very small water systems are financially troubled. Previous research and anecdotal information also support this finding. The need for new facilities for meeting growth and new requirements under the Safe Drinking Water Act (SDWA) are increasing the financial pressure on these systems. The expectation of rate relief is crucial to utility planning decisions. Commissions also may affect finances through policies regarding the relative amounts of debt and equity a utility may incur as well as policies affecting the accounting treatment, especially depreciation.

Many small water utilities actually rely on commission staff and the regulatory process to address their financial conditions through ratemaking and related proceedings. Deregulating small systems, or simply exempting them from financial regulation, obviously carries some risk that the financial condition of small systems will not improve or even worsen. Other than deregulation, there are probably opportunities for improving the effectiveness of commission oversight of water utility finances.

## Ownership

Commission approval may be required if a utility seeks a major change in corporate structure or ownership. This authority may involve mergers and acquisitions, diversification, and the transfer of utility assets. Forty-one commissions regulate issues of ownership. Commission regulation of ownership is closely related to the issue of certification. Both may affect the structure of the water utility industry and its regulation.

Commission approval of ownership changes can be direct (as in the approval of an acquisition) or indirect (as in policies regarding accounting treatments). Moreover, some commissions have formal policies regarding mergers and acquisitions while others work informally to affect the structure of the water industry in their states. In response to the proliferation of small systems, some encourage consolidation of private utilities while others promote public acquisition. Commission authority and practice varies from state to state. Connecticut law allows the Department to take receivership action against small private water companies that do not perform in the public interest. The Department frequently is petitioned to hold receivership hearings. The Missouri commission, which uses simplified procedures and reporting, also encourages consolidation of small companies and the sharing of management resources among utilities.

Table 4-3 summarizes the annual disposition of privately owned water utilities by the Illinois Commerce Commission for the period 1980-1988. Out of fifty-three utilities, twenty-one were acquired by other investor-owned water utilities, twenty-six were acquired by local governmental units, and six were acquired by homeowners' associations. The data indicate a general tendency toward consolidation, with slightly more Illinois water utilities converting to public ownership. In an average year, the Commission dealt with six ownership cases, though over the years the number of cases ranged from one to twelve. This translates to an annual change in ownership for about 8 percent of Illinois' jurisdictional investor-owned water utilities (71 water utilities were regulated in 1989).

This is not an overwhelming number of cases, but it is not insignificant. Taken together with rate cases and other commission proceedings, ownership proceedings can add substantially to a commission's caseload. Such proceedings obviously consume the resources of the regulated firm and the acquiring entity as well. Some state commissions do not regulate these transactions, and leaving them to private arrangements may be plausible in some instances. Also, it may be possible to design the commission approval process so that some transactions (such as acquisition by a governmental unit) require less oversight than others.

Transactions involving two or more jurisdictional utilities would appear to require special scrutiny because of the potential for problems, not the least of which is cross-subsidization. However, it could also be argued that any time the assets of a jurisidictional utility are sold, effects on ratepayers in terms of rates and service obligations must be analyzed. Some transactions may represent the last time commission regulation is exercised and commissions may want assurances that their approval of the change is in the public interest.

## TABLE 4-3

## DISPOSITION OF PRIVATELY OWNED WATER UTILITIES IN ILLINOIS, 1980-1988

| Year* | Acquired by an Investor-Owned Water Utility | Acquired by a City, County, or District | Acquired by an Association | Total |
|---|---|---|---|---|
| 1980 | 2 | 4 | 1 | 7 |
| 1981 | 9 | 3 | 0 | 12 |
| 1982 | 0 | 1 | 0 | 1 |
| 1983 | 1 | 3 | 0 | 4 |
| 1984 | 3 | 4 | 1 | 8 |
| 1985 | 1 | 5 | 0 | 6 |
| 1986 | 2 | 2 | 2 | 6 |
| 1987 | 2 | 1 | 1 | 4 |
| 1988 | 1 | 3 | 1 | 5 |
| Total | 21 | 26 | 6 | 53 |

Source: Staff of the Illinois Commerce Commission in response to the 1989 NRRI Survey on Commission Regulation of Water and Sewer Systems.

* Year of the commission directory for which this information was prepared. The transaction may have been approved in an earlier or later year.

## Complaints

Commissions may provide a forum for customers to bring complaints against the utility. Complaints may concern areas such as bill discrepancies, disconnection, or service quality. The complaints may be resolved informally or through a formal hearing. All forty-six commissions with jurisdiction over investor-owned systems process consumer complaints related to those systems.

Deregulation may affect ratepayers along a variety of dimensions. Perhaps more important is the potential for deregulation to affect service quality and, thus, customer satisfaction. Under some deregulation schemes, state public utility commissions would no longer provide a forum for water utility customers to express their complaints. As concerns about drinking water quality escalate, especially for water delivered by small systems that may have difficulty meeting requirements, the commission forum may become increasingly important to water customers.

In 1988, the water industry sponsored a study of customer satisfaction using surveys of the primary water customers of water utilities belonging to the National Association of Water Companies.[5] The data do not distinguish between regulated utilities and those with no or little regulation. However, small systems (those with annual sales volumes under $1 million) are compared with mid-sized ($1-10 million) and large (over $10 million) systems. As has been noted, these small systems are the most likely candidates for deregulation. Also, many may already operate under exemption or simplified procedure. Thus, the data may provide insights about deregulation's potential effects.

Some of the study's key findings were as follows:

- Customers of small companies gave their utilities lower scores on overall customer satisfaction compared with mid-sized and large firms.

- Customers of small companies gave their utilities lower scores on water quality than mid-sized and large companies.

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[5] Walker Research: Customer Satisfaction Measurements, *Water Service Customer Satisfaction: A Management Report* (Washington, DC: National Association of Water Companies, 1988).

- Customers of small companies were less pleased than average with their billing statements, finding them difficult to understand, inaccurate, and so on.
- Customers of small companies were least likely to feel that the cost of their water service was reasonable.
- Customers of small companies were comparable to those of mid-sized and large utilities in terms of views about the sufficiency of water service information.

In decreasing order of importance, the survey also found that overall water customer satisfaction was determined by the quality of water, billing statement format and content, the reasonableness of water service costs, the adequacy of water service information, and the sufficiency of water supplies.[6] Although nine out of ten customers were satisfied or very satisfied with their water service company, the results of the study suggest a high probability that the one dissatisfied customer is served by a small company.

Deregulating smaller utilities could itself be a source of aggravation for small system customers, particularly if deregulation caused a deterioration of service quality. Some commission observers have found that unregulated systems have deteriorated because of a lack of commission oversight.[7] For many utility customers, regulatory commissions provide an effective court of last resort. Processing consumer complaints makes it possible for commissions to mediate conflicts between utilities and their customers. Without the commissions, it is unclear that other institutions would be accessible and willing to process consumer complaints.

Some commission staff believe that deregulation would have certain advantages but felt that commission oversight was essential, particularly for hearing customer complaints.[8] It is possible, of course, to exempt utilities from other forms of regulation while maintaining the complaint processing function. Doing so would help ensure that ratepayers will have a forum in which their concerns can be addressed and resolved. However, the lack of jurisdiction over utility rates and revenues may seriously undermine commission efforts to help ensure service quality and customer satisfaction.

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[6] Ibid., 5.

[7] 1990 NRRI Survey on State Commission Regulation of Water and Sewer Systems.

[8] Ibid.

## Reports

Commission jurisdiction may require the filing of annual or other periodic reports by regulated water systems. These reports may concern financial, operational, or planning data. All forty-six commissions require their jurisdictional systems to submit reports on utility operations.

Placing periodic financial or operational reports on file with a state commission may be one of the minimalist forms of regulation. Of course, most commissions use these reports in exercising their other regulatory functions. Reports on file with the commissions are generally available to the general public as well, and are used for purposes of intervening before the commission in various proceedings.

Reports can be costly both to regulated firms and commission staff. Many of the small and very small water utilities will have difficulty preparing reports. Limited resources may also limit careful review of reports by commission staff. For these reasons, as reported in chapter 3, twelve states have adopted simplified reporting for all or some of the water utilities under their jurisdiction. Simplified reporting for some utilities, based on size or other criteria, appears to be an option that can save commission and utility resources.

Total deregulation presumably would discontinue the reporting function. Thus commission staff and the public would no longer have access to data about the deregulated utilities. One consequence is that in the few states that have instituted some form of deregulation, there is no data available to study its consequences. Thus, there is little basis on which to judge the deregulation experience.

Commissions that are contemplating reducing or removing certain regulatory functions may want to consider leaving some form of reporting intact, at least long enough to evaluate deregulation's effects on such variables as rates, finances, and customer satisfaction. Even a simplified report form could yield simplified data. Having a comprehensive set of reports on file can facilitate future policymaking that affects the water supply industry as a whole, including statewide planning. This is probably in the best interest of the water supply industry as well as regulators.

## Effects of Deregulation on Commissions

Deregulation is frequently purported to benefit commissions themselves, and may be based more on this rationale than on market efficiency or technological grounds. Often, however, the savings to commissions from deregulating water utilities may be more illusory than real.

There are at least four reasons for this latter assertion. First, the released time and funds from water system deregulation could be diverted to more intensive regulation of the remaining water systems (that is, the large water utilities). Second, the released time and funds from water system deregulation could be diverted to regulating other public utility sectors (for example, natural gas, electricity, and telecommunications). Third, deregulation may merely mean that the time and funds burden is shifted from the state commissions to local government units; that is, municipalities, districts, and counties. Finally, as seen in chapter 3, the size of the staff assigned to water regulation in some state commissions is very limited in the first place, thus limiting the size of the savings.

In brief, the functions performed and services previously provided by state commissions would need to be performed and provided by individual governmental units, at possible substantial increases in cost. As was seen in chapter 4, there are relatively few staff members working on water cases at the state commissions. Deregulation, therefore, would not actually "free up" significant numbers of staff to work on other issues. However, reducing regulation may improve the effectiveness of these staff members in the work they now perform.

The Wisconsin Public Service Commission recently completed a highly informative study of the effects of transferring regulation of municipally owned water and sewer utilities from the Commission to municipal governments.[9] The cost of decentralizing regulation of these water and sewer systems (that is, transferring the regulatory burden from Commission to the municipalities) was estimated to be approximately $201,000 a year. This estimate was based on the difference between the cost of continued commission regulation (estimated at $535,000 annually) and the cost of municipal regulation (estimated at $736,000 annually).[10]

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[9] Paul R. Lenz, *Municipal Water and Sewer Utilities: Should Their Regulation Be Decentralized?* (Madison, WI: Wisconsin Public Service Commission, August 1986).

In the Wisconsin study, no information was available on the impact of the regulation transfer on average municipal water and sewer system bills. The absence of information on individual rate and bill effects is unfortunate since it would be highly instructive to calculate the effect of transferring regulation on both average rates and average bills. Naturally, it can be speculated that the higher costs will be borne directly (through rates) or indirectly (through taxes) by municipal residents.

Although savings from deregulation are not easily documented on a large scale, several commissions report savings from simplification. Some staff members believe that simplified regulation has saved their commissions and regulated utilities both time and money, although it is difficult to attach a dollar amount to these savings.[11] Others have found that simplification reduces regulatory workload while still allowing for commission oversight when necessary. Some staff members who have generally opposed deregulation support simplification.

Commissions that have no policy regarding simplification still may be more lenient toward water utilities. This leniency may not save commissions time--it probably does just the opposite--but is usually regarded as beneficial to the state's jurisdictional utilities. Commission choices regarding the regulation of water systems (and small systems in particular) should take these tradeoffs into account.

## Commission Staff Perspectives on Deregulation

Staff members at selected commissions were interviewed on the basis of their responses to an earlier 1989 NRRI survey.[12] These contact persons, identified in appendix B, are all knowledgeable about water system regulation within their respective jurisdictions. The interview questions and responses are summarized below.

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[10] This is a mid-point estimate between an upper bound estimate of $492,000 and a lower bound estimate of $1,000.

[11] 1990 NRRI Survey on State Commission Regulation of Water and Sewer Systems.

[12] Janice A. Beecher and Ann P. Laubach, *1989 Survey on Commission Regulation of Water and Sewer Systems* (Columbus, OH: The National Regulatory Research Institute, 1989).

1. *Can you provide estimates of the cost savings associated with either partial or complete deregulation of water utilities within the jurisdiction of your commission?*

Given the absence of any experience with either partial or total deregulation, many respondents could not quantify any actual or potential cost savings for their commission. Some respondents indicated that water utility deregulation is not an issue since the number of regulated systems is small and not viewed as a burden. For example, the latest data indicate that Arkansas regulates two utilities, Colorado regulates twelve utilities, Michigan regulates twenty-one utilities, and Utah regulates eighteen utilities with approximately 1,400 systems remaining outside commission jurisdiction. Two respondents indicated that water utility regulation is not a burden since only about 10 percent of the jurisdictional water utilities could be categorized as financially troubled or "bad operators."

2. *Can you conjecture as to the disposition of the commission cost savings from either partial or complete deregulation?*

Several respondents acknowledged a reduction in staff involvement with deregulation and indicated a diversion of the released resources to the regulation of either the remaining water utilities or to the regulation of other public utility sectors. One respondent observed that deregulation would result in reduced assessments (the regulated firms are charged fees to support the commission) and, thus, there would be no cost savings to be diverted.

3. *Can you provide estimates of the cost burden on local government units from either partial or complete deregulation?*

Since many of the respondents were affiliated with commissions that do not regulate municipally owned or publicly owned utilities, they could not provide any information regarding the cost burden on local governmental units. Several respondents confirmed the results of the Wisconsin study[13] that deregulation of municipals substantially increased the cost to local governments, since the latter do not have accounting, engineering, financial, and legal expertise. One respondent viewed the commission operating as a manager/consultant rather than as a regulator to many of the regulated water utilities since the commission provides expertise to these jurisdictional utilities that could not be provided by local government units under deregulation.

4. *Does deregulation of municipally owned water systems increase the potential for cross-subsidization across municipal services?*

Since many respondents are associated with commissions that do not regulate municipally owned or publicly owned water utilities, they could not provide any information on actual or potential cross-subsidization across local or municipal services.

5. *Does water utility deregulation, either partial or complete, increase the potential for cross-subsidization across customer classes or across sectors within the service area of the water utility?*

Many respondents indicated that total deregulation increases the potential for price discrimination and cross-subsidization across customer classes and across geographical sectors within service areas. Other respondents indicated the additional results of increased water rates and increased numbers of consumer complaints.

6. *Does water utility deregulation have any impact on quality of service?*

Some respondents indicated that, theoretically, quality and provision of service should not deteriorate with deregulation since other state agencies will continue to maintain and enforce water quality standards. However, other respondents indicated that deregulation will decrease both water quality and fire protection service. Other respondents fear the increased incidence of arbitrary cutoffs and service disconnections, increased customer complaints regarding service quality, and the decreased probability of compliance with the Safe Drinking Water Act or adequate coping with drought.

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[13] Lenz, *Municipal Water and Sewer Utilities*.

7. *Will the transfer of regulation from the commission to local government units enhance local electorate/consumer input into the operation of the water system and make the local water system management more sensitive to local requirements and needs?*

Some respondents indicated that local regulation with its increased local involvement will have positive effects. However, other respondents indicated that local regulation only means that the local utility management is more receptive to local politics rather than more receptive to local needs; that is, local regulation does not necessarily make water utility management more sensitive to local requirements.

## An Overview

A consensus of the commission staff surveyed was that deregulation (the elimination of regulatory oversight) produces a worse situation than the prior situation of imperfect regulation and that unregulated water utilities will deteriorate without regulatory monitoring. In brief, state commission regulation is preferable to local control since it is less politicized. However, a minority of respondents indicated that local regulation seems to be working in that there is little public and/or legislative pressure to regulate the many water systems outside commission jurisdiction.

An obvious conclusion drawn from the staff is that state commissions generally are not tracking the performance of deregulated water utilities. With the exception of Wisconsin, state commissions have not assessed the potential impact of water system deregulation and have not documented the impact of deregulation that occurred in the past.

In this context of minimal commission activity regarding the evaluation of either past of future deregulation of water utilities, "proceed with caution" may be the underlying message. At the very least, commissions may want to generate more data on deregulation's potential consequences. Further, if deregulation is the preferred option, it may be appropriate to move gradually and experimentally so that course adjustments can be made as needed. One way to do so is to separate key regulatory functions--certificates, rates, finances, ownership, complaints, and reports--and consider regulatory options within each of these areas. States may find that a particular configuration of authority works well for the regulation of their water supply systems.[14]

Perhaps the most important question in evaluating the choice among regulatory alternatives for water utilities, including deregulation, is the effect on resources and their allocation. Savings from deregulation must be compared with its costs, including the additional resource cost burden on local government units. Additionally, the disposition of the state commission resource cost savings should be assessed. Other issues include the increased potential from water utility deregulation for cross-subsidization across municipal services, customer classes, and geographical areas within the service area. In brief, we need to know more about the benefits and costs of deregulation versus regulation This information is a prerequisite to making rational decisions regarding the appropriate course of public policy on this issue.

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[14] Commissions, of course, may have limited ability to alter their authority or the way it is exercised. One solution is to work with state legislative bodies to devise appropriate statutory and regulatory solutions.

# CHAPTER 5

## REGULATORY ALTERNATIVES FOR WATER UTILITIES

Various types of regulatory alternatives exist. These types vary in detail but share the common intent of improving the cost effectiveness of regulation for state commissions, water utilities, and water consumers. Thus, regulatory alternatives may be viewed as variations on a theme and not necessarily mutually exclusive.[1]

This chapter provides an overview of twelve regulatory alternatives organized into three general categories, as depicted in figure 5-1: structural and jurisdictional alternatives, procedural and mechanical alternatives, and nontraditional alternatives. Though some may constitute a form of partial deregulation, none would abolish the institution of regulation altogether. In other words, commission oversight of the water supply industry is not entirely relinquished.

Of course, maintaining the status quo is always an option for policymakers. In the regulation of water utilities, some commissions may find that the current regime is clearly cost effective. This may be more likely for states that have a manageable number of jurisdictional water utilities and a staff sufficient in size to handle their regulation. For other commissions, regulation may not be cost effective for a variety of reasons, many of which are outside the commission's control. In some areas, for example, the proliferation of small systems is especially problematic. In others, commission resources may be severely limited.

For whatever reason, commissions may want to explore regulatory alternatives for water that are distinct from the simple option of deregulation. Commission preferences for different alternatives may depend on perceptions about where improvement is most needed. Structural and jurisdictional

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[1] On these issues, see also Raymond W. Lawton and Vivian Witkind Davis, *Commission Regulation of Small Water Utilities: Some Issues and Solutions* (Columbus, OH: The National Regulatory Research Institute, 1983).

**Structural and Jurisdictional Alternatives:**

- Selective exemption
- Industry restructuring
- Regulatory expansion

**Procedural and Mechanical Alternatives:**

- Selective Simplification
- Operating ratios
- Generic rates of return

**Nontraditinoal Alternatives:**

- Safe harbor
- Competitive bidding
- Excess profits tax
- Price caps and rate indexes
- Social contract
- Incentive regulation

Fig. 5-1. Regulatory alternatives for water utilities.

alternatives focus on the nature of the water supply industry and the exercise of commission authority. As mentioned previously, structure and jurisdiction go hand in hand. Commissions that promote public acquisition, for example, may be affecting the scope of their own authority. Procedural and mechanical alternatives focus on improving the efficiency of traditional regulation. These techniques generally are thought to help streamline regulation through either simplified procedures or simplified regulatory tools. Finally, nontraditional alternatives represent a more significant departure from the usual regulatory mode, while the institution of regulation is still maintained.

The consideration of regulatory alternatives should not be limited to one type or another. In fact, a combination of approaches may yield the optimal improvement in a given state's regulatory scheme.

## Structural and Jurisdictional Alternatives

### Selective Exemption

In the extreme, exempting water utilities from state commission jurisdiction can resemble deregulation. Selective exemption is a regulatory alternative by which some utilities are exempt from all or some regulations as long as certain criteria are met. Exemptions are typically associated with a minimum size threshold or a particular system characteristic (see chapter 3 and appendix A). Some of the exemption criteria used by the commissions are:

- Systems with fewer than 2,000 customers (Iowa)
- Systems serving fewer than 100 persons (Florida)
- Systems with less than $5,000 in operating revenues *and* fewer than 25 customers (Nevada)
- Systems with less than $300 in annual operating revenues per customer or fewer than 100 customers (Washington)
- Systems with fewer than 300 customers; average annual residential rate of $18 per month or less; adequate service; *and* nondiscriminatory service (Oregon)
- Investor-owned utilities that serve only one town are exempt unless they go beyond 3 miles of the town limit (Kansas)
- Systems with fewer than 10 customers and systems funded by FHA financing (Louisiana)
- Investor-owned and municipal systems that do not sell outside of their enfranchised jurisdictional area (Rhode Island)

Exemption thresholds should be chosen on the basis of the water industry profiles and a calculation of how many utilities will be exempted and how many will remain under the commission's jurisdiction. Commissions also may want to be aware of the potential for exemption to reduce assessments or fees used to cover the costs of regulation.

Exemptions may be implemented selectively not just according to utility characteristics but according to regulatory function. One variation is to require otherwise deregulated water utilities to file annual financial or operating reports. Another is to detariff while maintaining a process for resolving consumer complaints. Still another is to regulate rates while allowing utilities more discretion in financial and ownership decisions.

Selective exemption can be an effective tool for managing the commission caseload and reducing regulatory burdens on some water utilities. However, care must be taken in determining exemption criteria, because of the risk of appearing arbitrary or of giving up too much (or too little) oversight. Commissions also should be aware of the signals sent to regulated utilities. Detariffing, for example, may take the bite out of regulation so that remaining jurisdiction is seriously undermined. It also may be difficult for commission staff to know whether exempt utilities continue to meet the exemption criteria. Still, a carefully crafted plan of selective exemption can free the resources of commissions, water utilities, and their customers. The safe-harbor approach is an extension of exemption described below.

## Industry Restructuring

Regionalization, acquisitions, mergers, and other restructuring strategies are sometimes viewed as potential solutions to the problems of small water systems and their regulation. Restructuring in this sense would reduce the total number of water suppliers. Depending on the specific restructuring approach, this may or may not affect the number of utilities under commission jurisdiction and overall caseloads.

The term "nonproliferation" is sometimes used to refer to the containment of growth in the number of small water utilities, particularly nonviable systems. Federal and state regulators seem to share this concern because of the regulatory burdens that small systems create. Commissions with authority to approve certificates of convenience and necessity can use this regulatory function to preclude the creation of some water systems, forcing another solution to the provision of water service.

Some commissions may want to encourage utility mergers and acquisition of small systems by larger privately owned utilities or publicly owned utilities. Others may want to encourage consolidation of utility management to promote certain economies of scale, while maintaining current ownership arrangements. The result of consolidation is not only a reduction in regulatory costs but a reduction in the number of financially nonviable water systems that also are least able to meet regulatory requirements. The potential benefits to commissions, utilities, and ratepayers from water utility consolidation strategies are significant.

A U.S. Environmental Protection Agency (EPA) study provides a comprehensive decision analysis for considering structural and nonstructural alternatives.[2] Its major steps are as follows:

- Identify the water utility's problem or need and evaluate its in-house abilities.
- Identify capabilities/shortcomings of neighboring utilities.
- Hold informal management discussions with neighboring utilities to identify possible areas of cooperative effort.
- Determine the most appropriate regionalization response and present regionalization ideas formally to utility boards or company owners.
- Decide whether to pursue a structural or nonstructural option:
  - Structural options: association/nonprofit corporation, local special district, annexation, and areawide special district.
  - Nonstructural options: informal agreement, basic service contract, joint service contract, and regional council of government.
- Investigate legal authorities and other issues.
- Implement the selected option, evaluate its effectiveness, and adjust as necessary.

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[2] SMC Martin, Inc., *Regionalization Options for Small Water Systems* (Washington, DC: U.S. Environmental Protection Agency, 1983), figure 1.

Missing from the analysis is an assessment of effects on water utility customers in terms of rates, service, and other variables. Regulatory commissions may be in the best position to evaluate restructuring alternatives from this perspective.

## Regulatory Expansion

In the quest for policy reform, expansion of regulation by the states also is an alternative, even though it may be infrequently discussed.[3] The regulation of both municipal and investor-owned systems by the state commission (using the yardstick approach or another model) may have certain systemic advantages.

It is often held that municipal systems may be more prone to political influence, taxation, subsidization, and to the provision of excessive free service. The extension of state regulation to municipal systems would produce more uniformity in water rates within state regulatory jurisdictions and eliminate both subsidized water rates and the use of water rates as a vehicle for taxation. It thus should reduce the adverse efficiency consequences of basing rates largely on non-cost considerations. However, there is no guarantee that either technical efficiency or cost performance would be improved by regulating municipal systems. Of course, this approach could be combined with a reduction in regulation based on size.

Any discussion of water utility regulation should stress that there are numerous unanswered questions concerning the local regulation of publicly owned systems and the state regulation of water utilities of both ownership forms.[4] It has also not been fully substantiated that state regulation is an effective means for curbing the excesses inherent in public ownership. State regulation has substantial potential for achieving this result, but there exists only limited evidence supporting this assertion.

One area in which expansion may be particularly beneficial is integrated water resource planning, including policies toward conservation and supply and demand management. Statewide planning depends on statewide data. A central state regulatory agency with jurisdiction over all a state's water utilities can develop more effective planning documents and approaches. Opportunities for interconnections, for example, may be revealed to the planner. Drought planning and other types of emergency planning also are facilitated. The result is more comprehensive and uniform public policy toward the state's water supplies.

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[3] This discussion follows Patrick C. Mann, *Water Service: Regulation and Rate Reform* (Columbus, OH: The National Regulatory Research Institute, 1981), 20.

[4] This discussion follows Mann, *Water Service*, 25.

Regulatory expansion also may take a procedural form that allows commissions to exert more regulatory authority than they can otherwise do. Consolidation of rate cases, rulemakings, and other regulatory proceedings may be feasible in some states. Generic cases may be used to determine policies for all jurisdictional utilities. Finally, commissions with sufficient resources can engage in proactive regulation by citing one or more water utilities for regulatory review of rates, finances, management performance, resource planning, or service practices, rather than waiting for the utilities to initiate a proceeding. One area where proactive review may be particularly beneficial is in positioning the commissions and their jurisdictional water utilities to deal more effectively with the cost and rate impacts of the Safe Drinking Water Act amendments.[5]

Like many of the other regulatory alternatives, expansion is often a statutory matter; commissions normally have limited authority to alter the scope of their jurisdiction. The decision to expand regulation should rest not only on implications for the water supply industry but on implications for commissions. In some states, expanding the scope of regulation would require a substantial infusion of staff resources.

## Procedural and Mechanical Alternatives

### Selective Simplification

Simplification of water utility regulation can be used in conjunction with other regulatory alternatives (such as exemption) and can be accomplished in several areas--filings, proceedings, and reporting. The use of simplified procedures by the commissions is described in chapter 3 and appendix A. Like exemption, simplification may be implemented selectively for water utilities that meet certain criteria, such as size requirements.

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[5] Patrick C. Mann and Janice A. Beecher, *Cost Impact of Safe Drinking Water Act Compliance for Commission Regulated Water Utilities* (Columbus, OH: The National Regulatory Research Institute, 1989).

One method is the simplified rate filing, sometimes known as the shortened form. The West Virginia Public Service Commission uses a one-page form for rate increase applications for water utilities generating less than $200,000 in annual revenues. Ohio has a simple three-page form for rate filings.

While simplified forms focus on reducing the paper work and bureaucratic costs associated with water utility regulation, simplified proceedings focus on reducing the time necessary for water utility regulation. Such a method can involve waiving the requirement for a formal rate hearing or legal representation. Stipulation is also a form of procedural simplification. In a stipulated proceeding, the commission staff and water utility staff agree to certain facts prior to the rate hearing. If the agreement is adopted by the hearing examiner or the commission (commissions and trial examiners are not bound by the stipulations) substantial regulatory resources in the form of time and money can be saved.

Simplified reporting can save regulated utilities substantial resources. Several commissions have concluded that it does not make sense to require small water utilities to muddle through the same report form as a major investor-owned utility. Simplification of reporting may actually increase the probability of compliance with commission reporting requirements, and therefore assist commission staff in keeping abreast of the financial and operating characteristics of the state's regulated utilities. As was noted earlier, commissions may want to require some sort of report from utilities otherwise exempt from regulation.

## Operating Ratios

Another regulatory alternative is to substitute the use of operating ratios for traditional rate base regulation of water utilities. This technique (which has been traditionally used in the regulation of motor carriers) is a means of simplifying the regulatory process, particularly in the context of very small water utilities with little or no capital investment or rate base. Operating ratios have been used by the commissions in North Carolina and South Carolina for small water utilities.

According to Robert M. Clark:

> An operating ratio is chosen not for the purpose of providing an adequate return on capital invested, but rather to provide a margin of revenues over expenses as protection to the firm against the variability of revenues and/or expenses. The use of the term "operating ratio" implies that investment is not important and that no consideration should be made of investment in determining a firm's revenue requirements.[6]

Because the use of operating ratios shifts attention from investments to operating expenses, the calculation of revenue requirements shifts accordingly:[7]

Where: RR - total revenue requirement
O&M - operating and maintenance expense
D - depreciation expense
S - gross receipts tax (sales tax)
T - income tax
r - rate of return or margin and
RB - rate base,

then the rate of return method can be expressed as:

$$RR = O\&M + D + S + T + r(RB),$$

but the operating ratio method can be expressed as:

$$RR = O\&M + D + S + T + r(O\&M + D).$$

With the ever-increasing concern for water utility finances, the regulation of operating ratios may be an option that gives regulators reasonably accurate oversight of smaller utilities. The use of operating ratios also may send a clearer signal to commissions about utilities in trouble. As was seen in chapter 4, the financial health of the very small and small water utilities is sometimes grim. Commission staff may be in a position to assist some utilities in improving their operational picture through this type of regulation.

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[6] Robert M. Clark, "Regulation Through Operating Revenues--An Alternative for Small Water Utilities," *NRRI Quarterly Bulletin*, 9 no. 3 (July 1988), 347.
[7] Ibid., 349.

Substituting the operating ratio technique for rate base regulation does not eliminate the need for commission regulation. Regulators must set eligibility requirements, define the appropriate operating ratio, determine the allowed or permitted expense/revenue ratio, and closely monitor the operating expenses of the water utilities for which the method is used. Also, commission staff may have to guard against the possibility that the use of operating ratios may provide an incentive to inflate expenses, more so than traditional regulation.

The operating ratio technique should be applied only to utilities with a specified investment profile. For those that are eligible to use the operating ratio method, the cost of regulation will be reduced. When many water utilities are eligible, commissions will realize significant cost savings as well.

## Generic Rates of Return

Some regulatory alternatives are designed to expedite regulation by improving upon some of its traditional tools. An obvious choice is the determination of rates of return, a process that often consumes much of the time spent in rate cases by commissions, utilities, and various intervenors.

There are a variety of methods for determining rates of return that would help streamline the regulatory process. The determination of a generic rate of return for utilities of similar size and operating categories would permit the consolidation of water rate cases, thus reducing the workload of commission staff. Commissions could set generic rates for all water utilities meeting certain criteria. Commissions could alternatively choose an indexing method to tie the rate of return to a specific financial instrument, such as a Treasury bill rate.

For about seven years, the Florida Public Service Commission has used a leverage formula for determining rates of return on capital.[8] The formula is a linear equation that uses a given set of assumptions to estimate changes in equity cost for given changes in financial leverage. Its use is based on the theory that the required return on common equity is a function of leverage.[9] The introduction of additional leverage, which increases financial risk, results in a higher required common equity return while the overall cost of capital, which is a function of business risk, remains constant.[10]

The leverage formula is used to estimate the cost of equity at various equity ratios. The first step is to determine the cost of equity for a water and sewer company with the industry average equity ratio of 40 percent. Then the following assumptions are made:[11]

- Business risk is similar for all water and sewer companies.
- Cost of equity is a linear function of the debt-to-equity ratio. That is, as a company takes on more debt, the cost of equity increases due to the added risk of additional fixed payments.
- Marginal weighted average cost of investor capital is constant over the 40 percent to 100 percent equity ratio range.[12]
- Marginal cost of debt is constant over the 40 percent to 100 percent equity ratio range.

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[8] "Formula Method for Determining Rate of Return," *Water: The Magazine of the National Association of Water Companies*, 30 no. 4 (Winter 1989): 42-3. This article reproduces a letter provided by the Honorable John T. Herndon of the Florida Public Service Commission and is the basis of the following discussion.

[9] Franco Modigliani and Merton H. Miller, "The Cost of Capital, Corporation Finance, and the Theory of Investments," *American Economic Review* 48 no. 261, (June 1958).

[10] "Formula Method," 43.

[11] Ibid.

[12] This assumption is based on the theory of capital structure advanced in Modigliani and Miller, "The Cost of Capital."

The next step is to calculate the marginal overall cost of capital as follows:[13]

$$(E/C)(COE) + (D/C)(COD) = COC$$

Where: E/C = equity ratio = equity as a % of total capital
D/C = debt ratio = debt as a % of total capital
COE = cost of equity
COD = cost of debt
COC = overall cost of capital

The equation can be rearranged to solve for the cost of equity for any equity ratio between 40 percent and 100 percent, while holding constant the cost of debt and the overall cost of capital:

$$COE = \frac{(COC - COD)}{E/C} + COD.$$

Finally, in applying the leverage formula, the Florida commission uses the following calculation:

$$\text{Equity Ratio} = \frac{\text{Common Equity}}{\text{Common Equity + Preferred Equity + Long \& Short Term Debt}}.$$

At their option, water companies in Florida may file expert testimony on capital costs, though none has done so since the commission began using this approach.[14] On balance, the commission has found that the economic savings far outweigh the lack of company-by-company precision in the approach. The benefits of using the leverage approach accrue to parties appearing before the commission as well as the commission itself:

> With over 600 water and sewer companies under the jurisdiction of the Florida Public Service Commission, a formula approach reduces the cost and administrative burden of having to deal with cost of equity testimony in all those water and sewer cases. Additionally, many of the small companies find it far preferable to avoid the cost and complexity associated with presenting cost of equity testimony.[15]

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[13] "Formula Method," 43.

[14] Ibid., 42.

[15] Ibid.

Those commissions with regulatory responsibility for large numbers of water utilities may benefit from analyzing the potential applications of generic rates of return for all or some of the water utilities under their jurisdiction.

## Nontraditional Alternatives

### Safe Harbor

An innovative approach to exemption from regulation is the safe-harbor approach, which may be used in conjunction with other regulatory methods. Under this technique, if the rates and other operating characteristics of the water utility stay within certain parameters, the water utility is permitted to operate free from direct commission regulation; thus, commissions provide a "safe harbor."[16]

The safe-harbor approach uses triggering mechanisms by which certain regulatory functions are turned on or off. In chapter 1, certain prerequisites for deregulation were described. These include existing water rates that are perceived by the public to be fair, an unacceptably high cost of water utility regulation, readily available substitutes, and adequate alternative regulatory safeguards.[17] Commission standards in these areas also may be used as triggering mechanisms when establishing the safe harbor.

Commission regulations are triggered only if a utility's rates, rates of return, customer complaints, or some other parameter fall outside of prescribed limits. An example is the use of a regulatory reopener clause, by which a utility must have commission approval for a rate increase if a certain percentage of its customers petition the commission for review. It is possible to use different triggers for different regulatory functions, such as operating ratios for financial regulation or consumer petitions for complaint processing. Commissions may want to require harbored utilities to continue filing reports for monitoring purposes. Commissions also may want to let utilities themselves trigger regulation at their option.

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[16] Lawton and Davis, *Commission Regulation of Small Water Utilities*.

[17] David C. Wagman, and Raymond W. Lawton, *An Examination of Alternative Institutional Arrangements for Regulating Small Water Utilities in Ohio: An Abridgment* (Columbus, OH: The National Regulatory Research Institute, 1989).

The safe-harbor approach can also be used with automatic adjustments or rates indexes. Some of the automatic adjustments are a function of actual cost increases--the cost of purchased water. An alternative is to have rates tied to a specific cost or price index or to have rates of return tied to a particular interest rate associated with a Treasury bill of a specific maturity. In telecommunications, rate indexes have generally been coupled with price ceilings or price caps. Under a banded price mechanism, the water utility would be provided discretion to increase or decrease rates within a specified range or band, without having to seek regulatory approval.[18]

The safe-harbor approach resembles selective exemption but is more complex and flexible because of the use of triggering mechanisms. Over time, commissions could review these mechanisms and make adjustments as needed. Under the safe-harbor approach, commissions clearly maintain regulatory authority, but exercise it in a more discretionary manner. The approach also may provide performance incentives to some regulated utilities who would prefer to stay in the harbor.

### Competitive Bidding[19]

One policy option for water utilities is the elimination of direct regulation of prices and rates of return by restructuring the regulatory agency to administer an auction system. Potential water suppliers would engage in a competitive bidding process to acquire water service franchises and the authority to operate. Demsetz[20] advocated such a mechanism in which the public utility franchise is granted to a bidder offering the best price-quality package, thus allowing competition among bidders. However, as

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[18] Tara M. Kalagher, "Alternatives to Rate of Return Regulation in Today's Telecommunications Environment," *Proceedings of the Sixth NARUC Biennial Regulatory Information Conference--Volume 3* (Columbus, OH: The National Regulatory Research Institute, September 1988), 233-53.

[19] This discussion follows Mann, *Water Service*, 21-23.

[20] Harold Demsetz, "Why Regulate Utilities"?, *Journal of Law and Economics* 11 (April 1968): 55-65.

Demsetz noted, for market restraint to be partially substituted for a regulatory commission two prerequisites must be satisfied: inputs required to commence service must be available to many potential bidders at competitive prices, and the cost of collusion by potential bidders must be prohibitively high.

Another variation on the bidding theme is to have public ownership of the water system with the bidding process used to select the system's operating firm. That is, the municipality would own the system and would only employ the bidding system to select the firm to manage the publicly owned system. Thus, the bidding process can have two forms. One is private ownership and operation; the other is public ownership with private operation. Under both forms, the auction system allegedly would eliminate substantial regulatory costs and many of the inefficiencies created by rate regulation.

The limitations of the Demsetz proposal are several.[21] Establishing a competitive level of earnings does not necessarily constrain price discrimination on the part of the water utility. The increased uncertainty involved in the bidding process may tend to increase capital financing costs. Then there is the issue of whether the bidding process will produce an optimal output and scale of development; that is, a regulatory agency may have to ensure that water services to rural and other fringe areas are maintained. Incentives may be lacking for the successful bidder to fund technological change, experiment with new services, redesign rate structures, and engage in capital investment to improve water service and water quality.

A decision must be made regarding the definition of successful bidding; for example, at the lowest price, is it providing water service at the "best" price-service mix, or is it paying the highest price for the franchise? Obviously, the selection of a specific definition will have a significant impact on the provision of water service in a particular market area. The bidding process is not devoid of political power, and the exercise of that power may produce an inefficient bidding outcome. Finally, for various reasons, some water franchise auctions may have no more than one bidder.

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[21] Harry M. Trebing, "Realism and Relevance in Public Utility Regulation," *Journal of Economic Issues* 8 (June 1976): 97-126; and, "The Chicago School Versus Public Utility Regulation", *Land Economics* 53 (February 1977): 106-22.

The competitive bidding system would substitute limited competition for direct price regulation. In the case of water service, competitive bidding for authority to operate does not appear to be a perfect replacement for direct rate regulation. One still needs a regulatory agency for monitoring conditions of service, ensuring adherence to the franchise contract, and monitoring the overall performance of the water firm. Furthermore, deregulation of a natural monopoly may remove entry barriers with little change occurring in market structure, conduct, and performance due to the unique cost conditions confronting water systems in many market areas.

Although not a replacement for direct regulation, bidding may be appropriate as a complement to regulation in specific phases of the rate-setting process. For example, Martin Loeb and Wesley Magat recommended a combined regulation-franchising arrangement, which they argue captures the desirable properties of both the bidding process and rate regulation.[22] Their solution involves providing inducements for the water utility to select an efficient rate structure and rate level as well as rewards for cost reductions.

## Excess Profits Tax[23]

The excess profits tax is another policy option for the regulation of water systems. Some economists have advocated removing entry restrictions as well as eliminating rate of return and rate structure control for industries that have natural monopoly status.[24] An excess profits tax would be substituted for the regulatory constraints on overall earnings. This alternative allegedly would reduce direct regulatory costs and help elimiate some of the inefficiencies associated with rate of return regulation.

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[22] Martin Loeb and Wesley A. Magat, "A Decentralized Method for Utility Regulation" *Journal of Law and Economics* 22 (October 1979): 399-404.

[23] This discussion follows Mann, *Water Service*, 21-23.

[24] Richard A. Posner, "Natural Monopoly and Its Regulation" *Stanford Law Review* 21 (February 1969): 548-643.

The excess profits tax as a regulatory device itself has numerous limitations.[25] For example, it does not resolve the efficiency and distribution effects theoretically associated with unregulated monopoly. The potential allocation inefficiency (output restriction), technical inefficiency, and redistribution of income effects are largely ignored. There is also the potential problem of cost inflation (such as excess wages-salaries and excess payments to suppliers) reducing the excess profits tax. There are no constraints on capital investment, thus creating the possibility of capital overinvestment (that is, the Averch-Johnson effect) in a deregulated context.

There also exist some of the same problems associated with the bidding proposal; that is, inadequate control over price discrimination, inadequate incentives for maintaining water service to fringe areas, inadequate incentives for technological change and internal efficiency, and inadequate motivation for changes in rate design.

A regulatory agency still must establish a specific rate of return as a base for determining the magnitude of excess profits to be taxed. There may be difficulties in setting a base rate of return that would cause neither waste nor inefficiency. There is also the issue of whether to impose a very restrictive excess profits tax (such as a 100 percent rate) or impose a more moderate excess profits tax instead (such as a tax of, say, 50 percent).

The biggest problem with the excess profits tax may be the general lack of profitability for many small water utilities, making tax incentives for performance quite meaningless. Thus, in the case of water service, this regulatory alternative does not appear to be a perfect substitute for direct rate regulation. Although it might be implemented on a limited basis, a regulatory agency may still be needed to monitor the quality and conditions of service as well as the water firm's overall cost performance.

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[25] Trebing, "Realism and Relevance" and "The Chicago School."

## Price Caps and Rate Indexes

A fairly new addition to the regulatory toolbox is the use of price caps or rate indexes. This alternative shifts the focus from rates of return and operational data to prices. Price regulation by price caps is not the same as regulation by price bands or price standards. Under a price band system, rates may be set and changed within a specified range, without prior regulatory approval. Under a system of price standards, rates are set according to some predetermined standard such as incremental costs, stand-alone costs, or based on an equity/fairness standard.

Upper limits would be placed on average water price with the price caps or price limits adjusted upward for inflation. As a result, the water utility could be released from most aspects of traditional rate base regulation and could be subjected to a minimal level of commission monitoring.

The potential advantages of price cap regulation are several.[26] One is administrative simplicity; some advocates contend that price cap regulation is easier to administer than traditional rate base regulation. A second potential advantage is efficiency gains; by disassociating prices from cost of service, price cap regulation provides an incentive for utilities to reduce costs. A third potential advantage is technological improvement; under price cap regulation, utilities may be more willing to modernize or expand plant since earnings are not restricted.

Extending price cap or rate index regulation to water service poses certain problems. First, there is the selection of the appropriate cost or price index. Regulators must choose among the Consumer Price Index, the Producer Price Index, or some specially constructed index of public utility costs. It can be argued that any index scheme should begin with cost-based rates, and that the index should be tied in some manner to the actual costs of the water utility.[27]

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[26] Charles S. Parsley, "Alternatives to Rate of Return Regulation of Local Exchange Carriers," *Proceedings of the Sixth NARUC Biennial Regulatory Information Conference--Volume 3* (Columbus, OH: The National Regulatory Research Institute, September 1988), 99-139.

[27] Robert E. Burns, "Sorting Out Social Contract, Deregulation, and Competition in the Electric Utility Industry," *Proceedings of the Sixth NARUC Biennial Regulatory Information Conference--Volume 4* (Columbus, OH: The National Regulatory Research Institute, September 1988), 737-41.

Second, there is the selection of the base rates under the social contract upon which indexing would occur. Regulators must ascertain whether the water utility is currently overcharging or undercharging water consumers. Any deviation of present water rates from the "correct" base level will be magnified by the index. A price index scheme has the potential for "locking-in" an inefficient and/or inequitable rate structure. Thus, prior to implementing the index, regulators must not only determine a reasonable average rate level but a reasonable rate structure as well.

Other issues associated with a system of rate indexes or price caps include the effects of system excess capacity. If a water utility has substantial amounts of excess capacity in either the production or distribution components, the water utility will be prone to look more favorably on rate indexes than if the utility was operating close to or at full capacity in both production and distribution. A related problem is the absence of an explicit mechanism within the price cap system that assures that cost reductions for the water utility are at least partially passed on to consumers in the form of rate reductions. Excessive earnings will probably trigger a regulatory response. Finally, if the water utility perceives the price cap as an entitlement and faces no competition from alternatives, efficiency incentives may be absent.

## Social Contract

Arguably, the appropriate level of regulation for small water utilities may be partial deregulation in the form of "social contract" regulation.[28] Social contract regulation in telecommunications has generally meant substituting price and service regulation for rate base and rate-of-return regulation.

For water utilities, social contract regulation could take the form of water rate indexes coupled with price ceilings or price caps. The water utility would agree with the commission to a specified contract period during which it would limit rate hikes to increases in some price or cost index while making specified capital improvements to maintain and upgrade water service. Thus, social contract regulation need not be confined to the determination of prices, as in the use of caps or indexes described above.

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[28] For a general discussion of this issue, see Douglas N. Jones' *A Perspective on Social Contract and Telecommunications Regulation* (Columbus, OH: The National Regulatory Research Institute, 1987).

In addition to prices, the social contract approach may encompass such issues as water system modernization, capitalization, system operating efficiency, service obligations, service quality, demand management, and resource planning. For example, a social contract might address whether utilities should be allowed to alter service quality to reduce costs and increase profits.[29]

Determining the duration of the social contract agreement by regulators is important since it may be necessary eventually to terminate the agreement if its anticipated benefits do not materialize. One can argue that the threat of reregulation must be real for social contract regulation to generate desirable cost, price, operating, and capital investment results on the part of the deregulated water utility.

Another important aspect of the social contract approach is the need for regulatory monitoring. While using price caps, for example, regulators may want to continue to monitor utility operating costs and assess management prudence related to capital investments. The cost of monitoring the social contract may *exceed* the cost of traditional rate base regulation. If this is the case, then the primary rationale for substituting social contracts for rate base regulation may be seriously undermined.

Social contract regulation--used in conjunction with price caps, rate indexes, or other mechanisms--may be an appropriate regulatory alternative, but should probably be approached experimentally until its effects on commissions and utilities can be more fully evaluated.

## Incentive Regulation

Incentive regulation is difficult to define because it can take many forms. Incentive regulation may be a hybrid of other traditional or nontraditional approaches, but is more explicit about providing utilities with incentives to improve their performance. It is aimed at the problem of cost control and the perceived lack of performance incentives under traditional regulation. Each form of incentive regulation has the potential for reducing the resources required for water utility regulation; some may increase regulatory costs.

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[29] Burl W. Haar and Benjamin Omorogbe, "An Analysis of Regulatory Alternatives for the Telephone Industry," *Proceedings of the Sixth NARUC Biennial Regulatory Information Conference--Volume 3* (Columbus, OH: The National Regulatory Research Institute, September 1988), 43-62.

Many of the regulatory alternatives described above can be defined in terms of incentive regulation. Under the safe-harbor approach, for example, utilities have incentives to avoid types of performance that would trigger regulation. Some variations of competitive bidding include performance inducements, such as rewards for cost reductions.[30] The excess profits tax is obviously an attempt to provide disincentives to excessive earning. And price caps schemes provide incentives to keep consumer prices down.

Commissions can encourage improvements in utility performance through the use of other tools. Management audits can be used to expand commission oversight. Rates of return can be linked to a measures of customer satisfaction or compliance with drinking water standards. Customer petitions can be used to either exempt utilities from regulation or increase regulatory monitoring. Some commissions have authority to revoke certificates of convenience and necessity if performance is grossly inadequate, although this may be perceived as an empty threat if it is never exercised. Commissions that choose to use these methods of incentive regulation may be accused of being intrusive or even punitive. On the other hand, utilities with sound performance records may have nothing to fear, and perhaps much to gain, from a well designed incentive regulation program.

Of course, incentive regulation can require an increase in commission oversight, which does not come free of charge. Some commissions may lack the experience or expertise to implement incentive regulation on a large scale. Moreover, some observers argue that "managerial discipline is a stockholders' function" that regulators should not have to provide.[31] Traditional rate of return regulation, it can be argued, provides a sufficient system of rewards, punishment, and general oversight. Some forms of incentive regulation may increase costs to water utilities and subsequently have an adverse effect on their ratepayers. Finally, incentive regulation may be a lost cause for some of the very small jurisdictional water utilities that lack the resources or capability to recognize and respond to the incentives provided.

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[30] Loeb and Magat, "A Decentralized Method for Utility Regulation."

[31] Martin T. Farris and Roy J. Sampson, *Public Utilities: Regulation, Management, and Ownership* (Boston: Houghton Mifflin Company, 1983).

Even if commissions reject the notion of providing additional incentives to promote utility performance, they may want to assess the various regulatory alternatives available in terms of the incentives--and disincentives--they incorporate.

## Evaluating Regulatory Alternatives

Choosing among regulatory alternatives, including maintaining the status quo, requires a careful analysis based on a set of evaluation criteria. A recent NRRI report sets out five criteria useful for evaluating alternative regulatory strategies:[32]

- Economic efficiency: the degree to which water is provided at the lowest possible cost, with comparisons with other similar water systems where possible.
- Equity: the distribution of costs among customers.
- Accountability: a customer's ability to participate in decisions about the water system and management responsibility to customers.
- Administrative effectiveness: the ability of management to plan, organize, and control the delivery of high quality potable water and perform all related functions such as budgeting, metering, and billing.
- Water quality: compliance with federal and state standards for preventing waterborne disease.

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[32] Wagman and Lawton, *An Examination of Alternative Institutional Arrangements*, 11. These criteria were used to evaluate selected alternative institutional arrangements for small water utilities: exemption, outreach, consolidation, intergovernmental.

Exemption, for example, may improve economic efficiency in terms of reduced regulatory costs for utilities.[33] However, when demand is inelastic there is a potential for price increases to result in excessive earnings by monopoly providers. An equity consideration is the potential for unregulated utilities to unfairly allocate costs, particularly when demand is inelastic. Some small utilities may remain accountable upon exemption because of the presence of community pressures, but the absence of regulatory oversight makes it difficult to ensure accountability, which may be especially important because of public health considerations. The administrative effectiveness of exemption is difficult to assess. Regulation is one of the only reasons utilities maintain certain records. Without the regulatory oversight and the assistance of regulatory staff, the administrative performance of some small utilities would suffer. Finally, exemption may hinder compliance with safe drinking water regulations because commissions provide an additional check on many small utilities.

Another useful evaluation may be to assess the effect of regulatory alternatives in the six functional areas of regulation identified in chapter 3--certificates, rates, finances, ownership, complaints, and reports. Commissions may want to develop more specific indicators within each of these areas to assess the effects of a particular change in policy on their regulatory objectives. Commissions should pay particular attention to potential effects on their agencies and the way regulation is performed. Even though they are intended to be more cost effective than traditional approaches, some regulatory alternatives may require a net increase in commission resources.

As various alternatives are explored, other evaluation criteria may emerge. Commissions may need to develop their own criteria based on their circumstances and experiences. Only through continual evaluation will sufficient data on regulatory alternatives emerge.

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[33] Ibid., 36-37.

## Conclusions

In utility regulation, as in all institutions, there is room for improvement. Perceptions about what ails water utility regulation affect the choice among regulatory alternatives. Deregulation may be an option that some states prefer. While it is possible to give up all forms of regulatory oversight and deregulate completely, it also is possible to discontinue or modify some forms of regulation while maintaining others. Reporting requirements, in particular, may be well worth preserving in a deregulation experiment so that commissions will be in a better position to evaluate outcomes.

The rationale for deregulating water utilities is significantly different from the rationale for deregulating other public utilities. Most arguments for water utility regulation rest on the existence of other safeguards and the problem of regulatory costs, not on market or technological advantages. Yet the potential cost savings from deregulation is not necessarily a persuasive argument, especially given that the commission staff resources devoted to water are often not great in the first place. Further, the context of the contemporary water supply industry, particularly the many pressures on water suppliers and their regulators, may be especially unsuitable for deregulation, at least at the present time.

Fortunately, there are many regulatory alternatives besides deregulation that can be used to reduce regulatory costs by improving regulatory efficiency, while still maintaining commission jurisdiction. Some of these focus on structure and jurisdiction, others on procedures and mechanics, and others on nontraditional methods. It is possible for commissions to configure the available alternatives to suit their particular needs and those of the water supply industry under their jurisdiction. Again, however, an experimental approach is probably warranted so that the desired outcome is achieved. This report is intended to be helpful in determining this configuration.

# APPENDIX A

## SELECTED STATE DATA FROM THE 1989 NRRI SURVEY ON COMMISSION REGULATION OF WATER AND SEWER SYSTEMS

## TABLE A-1

## JURISDICTION OF STATE COMMISSIONS OVER WATER SYSTEMS

| State | Jurisdictional Water Systems |
|---|---|
| Alabama | Investor-owned. |
| Alaska | Investor-owned; municipal upon utility's request; cooperatives. |
| Arizona | Investor-owned. |
| Arkansas | Investor-owned. |
| California | Investor-owned. |
| Colorado | Investor-owned. |
| Connecticut | Investor-owned; municipal; regional water authorities; water districts. |
| Delaware | Investor-owned; cooperatives. |
| D.C. | None. |
| Florida | Investor-owned; homeowners' associations unless all customers are members, or unless the developer loses control of the association when 50% of the lots are developed. |
| Georgia | None. |
| Hawaii | Investor-owned. |
| Idaho | Investor-owned. |
| Illinois | Investor-owned. |
| Indiana | Investor-owned; municipal; cooperatives; conservancy districts. |
| Iowa | Investor-owned with more than 2,000 customers. |
| Kansas | Investor-owned; cooperatives. |
| Kentucky | Investor-owned; water associations; water districts. |
| Louisiana | Investor-owned. |

TABLE A-1--*continued*

| State | Jurisdictional Water Systems |
|---|---|
| Maine | Investor-owned; municipal; water districts. |
| Maryland | Investor-owned; limited jurisdiction over municipal and county systems. |
| Massachusetts | Investor-owned; cooperatives that sell outside their membership; limited jurisdiction over water and fire districts. |
| Michigan | Investor-owned; cooperatives; homeowners' associations; privately owned systems. |
| Minnesota | None. |
| Mississippi | Investor-owned; nonprofit associations (cooperatives and homeowners'); very limited jurisdiction over water districts. |
| Missouri | Investor-owned. |
| Montana | Investor-owned; municipal. |
| Nebraska | None. |
| Nevada | Investor-owned; limited jurisdiction over cooperatives. |
| New Hampshire | Investor-owned; municipal, county, and precinct service outside jurisdictional boundaries unless 25 or fewer customers are served and rates and service are comparable. |
| New Jersey | Investor-owned; municipal; homeowners' associations. |
| New Mexico | Investor-owned; water and sanitation districts; municipal, county, cooperatives, and homeowners' associations may request to be regulated. |
| New York | Investor-owned; homeowners' associations. |
| North Carolina | Investor-owned. |
| North Dakota | None. |
| Ohio | Investor-owned; not-for-profits. |
| Oklahoma | Investor-owned. |

TABLE A-1--*continued*

| State | Jurisdictional Water Systems |
|---|---|
| Oregon | Investor-owned. |
| Pennsylvania | Investor-owned; municipal service outside of city boundaries. |
| Rhode Island | Investor-owned; municipal. |
| South Carolina | Investor-owned. |
| South Dakota | None. |
| Tennessee | Investor-owned. |
| Texas | Investor-owned water districts; cooperatives; homeowners' associations; limited jurisdiction over municipal systems. |
| Utah | Investor-owned. |
| Vermont | Investor-owned; cooperatives that sell outside their membership. |
| Virginia | Investor-owned; privately owned. |
| Washington | Investor-owned. |
| West Virginia | Investor-owned; municipal; water districts; cooperatives; homeowners' associations. |
| Wisconsin | Investor-owned; municipal. |
| Wyoming | Investor-owned. |
| Puerto Rico | Investor-owned. |
| Virgin Islands | Investor-owned; municipal; water districts; cooperatives; homeowners' associations. |

Source: Janice A. Beecher and Ann P. Laubach, *1989 Survey on State Commission Regulation of Water and Sewer Systems* (Columbus, OH: The National Regulatory Research Institute, 1989).

## TABLE A-2

## CRITERIA FOR EXEMPTING INVESTOR-OWNED WATER UTILITIES FROM COMMISSION REGULATION

| State | Exemption Criteria* |
|---|---|
| Alabama | Water sold for the sole use of tenants. |
| Alaska | Utilities with less than $100,000 in annual operating revenues or fewer than 10 customers may be exempted under election procedure. |
| Arizona | None |
| Arkansas | Class C or lower (NARUC Uniform System of Accounts) are exempt unless a utility or a majority of its metered customers petition for PSC regulation; the utility must have had revenues over $400,000 for three fiscal years. Non jurisdictional systems file gross income receipts each fiscal year. |
| California | None |
| Colorado | None |
| Connecticut | Systems with fewer than 50 customers; homeowners' associations that do not charge or arrange for separate rates, e.g., mobile home parks that collect on a "rental" basis. Expansion requires a certificate of convenience an necessity. |
| Delaware | None |
| Florida | Systems with fewer than 100 persons (not customers); landlords providing service to tenants without specific compensation for service; resale of water at cost of purchased water. County governments regulated water and sewer utilities unless they give up this authority to the state; resale companies must file annual reports; homeowners' associations are exempt unless some customers are not members or unless the developer does not lose control of the association when 50% of the lots are developed. |
| Hawaii | None |
| Idaho | None |
| Illinois | None |
| Indiana | None |

TABLE A-2--*continued*

| State | Exemption Criteria* |
|---|---|
| Iowa | Systems with fewer than 2,000 customers. |
| Kansas | Investor-owned utilities that serve only one town are exempt unless they go beyond 3 miles of the town limit. |
| Kentucky | None |
| Louisiana | Systems with fewer than 10 customers; systems funded by FHA financing. |
| Maine | None |
| Maryland | None |
| Massachusetts | Cooperatives providing water exclusively to their own members. |
| Michigan | Systems with fewer than 75 customers; fewer than 75 connections; government entities contracting for service by private companies. Commission can set rates to settle disputes with utilities. |
| Mississippi | None |
| Missouri | None |
| Montana | None |
| Nevada | Systems with less than $5,000 in operating revenues and fewer than 25 customers; both criteria must apply. |
| New Hampshire | Systems with fewer than 9 customers on a case-by-case basis; exemption may be revoked; municipals, counties, and precincts serving 25 or fewer customers outside their boundaries with comparable rates and service. |
| New Jersey | None |
| New Mexico | None |
| New York | None |
| North Carolina | Systems with fewer than 10 customers; self-governing systems, i.e., homeowners' associations. |
| Ohio | None |

TABLE A-2--*continued*

| State | Exemption Criteria* |
|---|---|
| Oklahoma | None |
| Oregon | Systems with fewer than 300 customers; average annual residential rate of $18 per month or less; adequate service; nondiscriminatory service. All four criteria must apply. |
| Pennsylvania | None |
| Rhode Island | Investor-owned and municipal systems that do not sell outside of their enfranchised jurisdictional area. |
| South Carolina | None |
| Tennessee | None |
| Texas | None |
| Utah | None |
| Vermont | Cooperatives providing water exclusively to their own members. |
| Virginia | Systems with fewer than 50 customers; Public Service Authorities or other municipal-owned systems; systems providing service prior to January 1, 1970. |
| Washington | Systems with less than $300 in annual operating revenues per customer or fewer than 100 customers. |
| West Virginia | None |
| Wisconsin | None |
| Wyoming | None |
| Virgin Islands | None |

Source: Janice A. Beecher and Ann P. Laubach, *1989 Survey on State Commission Regulation of Water and Sewer Systems* (Columbus, OH: The National Regulatory Research Institute, 1989).

* In some cases, exemption criteria determine whether or not a water system is an investor-owned system and subject to commission authority in the first place. For example, a cooperative may be exempt from any form of regulation unless it serves customers outside of its membership, in which case it may be regulated as a jurisdictional investor-owned system.

## TABLE A-3

## COMMISSION ADOPTION OF SIMPLIFIED PROCEDURES FOR REGULATING WATER UTILITIES

| State | Procedure (Year Adopted) |
|---|---|
| Alabama | None |
| Alaska | None |
| Arizona | Simplified rate filing (1987); Small Water Company Assistance Program (1988). |
| Arkansas | No procedure adopted but a proposal under consideration at the time of the survey would reduce rate filing requirements for investor-owned water and sewer utilities. |
| California | Simplified rate filing (1965). |
| Colorado | Simplified rate filing (1986); simplified reporting (1983). |
| Connecticut | Simplified rate filing (1980); simplified hearings (1980); simplified reporting (1983). |
| Delaware | None |
| Florida | Simplified rate filing (1980). |
| Hawaii | None. |
| Idaho | Simplified rate filing (1986); simplified hearings (1986); simplified reporting (1986). Simplified rate filings and reporting if utility has fewer than 100 customers. |
| Illinois | Simplified rate filing (1980); simplified reporting (1987). |
| Indiana | Simplified proceedings (1987). Utility files forms developed by URC and no hearing is required unless at least 10 customers complain. |
| Iowa | None |
| Kansas | None |
| Kentucky | Simplified rate filing (1982). Simplified rate filing procedure for utilities with 400 or fewer customers or gross revenues of less than $200,000. |
| Louisiana | None |

TABLE A-3--*continued*

| State | Procedure (Year Adopted) |
|---|---|
| Maine | Simplified reporting (1988). Some water utilities are exempt from filing annual reports (date unknown). |
| Maryland | Simplified rate filing (1983). Administrative approval of non-base-rate items such as tariff revisions, financing, etc., where possible in lieu of a formal hearing process (1981). |
| Massachusetts | None |
| Michigan | None |
| Mississippi | Simplified hearings (1988). At the time of the survey, this procedure was being litigated. |
| Missouri | Simplified rate filing (1976); simplified hearings (1976); simplified reporting (1982). In addition, there is an effort to consolidate management of several companies. |
| Montana | None |
| Nevada | Simplified rate filing (1980). |
| New Hampshire | No written policy has been adopted but some simplification of rate filings, hearings, and reporting regulations is allowed. |
| New Jersey | Guidelines for small water utility rate increase (1979). |
| New Mexico | Simplified rate filing for Class C and D utilities only (1975); simplified reporting (1985). |
| New York | Simplified rate filing (1975); simplified hearings (1975); simplified reporting (1975). |
| North Carolina | Simplified hearings (1983); simplified reporting (1985). |
| Ohio | Simplified rate filing for small water and sewer utilities only (1976). |
| Oklahoma | Simplified rate filing (1982); simplified hearings (1982); simplified reporting (1982). In addition, attorney representation is not required under certain circumstances. |

TABLE A-3--*continued*

| State | Procedure (Year Adopted) |
|---|---|
| Oregon | Simplified rate filing (date unknown); simplified hearings (date unknown). Commission provides the format for rate filings and assists as necessary. |
| Pennsylvania | Simplified rate filing for water utilities with annual gross revenues of less than $50,000 (1973). |
| Rhode Island | Simplified rate filing (1977); simplified hearings (1977). Small water utilities are assisted by commission staff. Parties are encouraged to stipulate major parts of rate cases. |
| South Carolina | None |
| Tennessee | None |
| Texas | Simplified rate filing (1987); simplified hearings (1987); simplified reporting (1988). Rate filing requirements depend on utility's size. |
| Utah | None |
| Vermont | No procedures adopted, but PSB does offer assistance to water utilities. |
| Virginia | Simplified rate filing (1986). |
| Washington | Simplified rate filing (date unknown). Utilities are also assisted in preparing tariffs. |
| West Virginia | Simplified rate filing (1981). |
| Wisconsin | Simplified reporting (date unknown). Wisconsin's uniform system of accounts is easier for all small utilities. |
| Wyoming | None |
| Virgin Islands | None |

Source: Janice A. Beecher and Ann P. Laubach, *1989 Survey on State Commission Regulation of Water and Sewer Systems* (Columbus, OH: The National Regulatory Research Institute, 1989).

## TABLE A-4

## TOTAL COMMISSION-REGULATED WATER SYSTEMS BY TYPE OF SYSTEM

| State | Investor-owned | Municipal | Water Districts | Cooperatives | Home-owners' Assoc. | Other | Total |
|---|---|---|---|---|---|---|---|
| Alabama | 12 | - | - | - | - | - | 12 |
| Alaska | 25 | 2 | - | 0 | - | - | 27 |
| Arizona | 428 | - | - | - | - | - | 428 |
| Arkansas | 2 | - | - | - | - | - | 2 |
| California | 248 | - | - | - | - | - | 248 |
| Colorado | 9 | - | - | - | - | - | 9 |
| Connecticut | 101* | 42 | 15 | - | - | 3 | 161* |
| Delaware | 17 | - | - | 2 | - | - | 19 |
| Florida | 288 | - | - | - | (a) | - | 288 |
| Hawaii | 11 | - | - | - | - | - | 11 |
| Idaho | 25 | - | - | - | - | - | 25 |
| Illinois | 71 | - | - | - | - | - | 71 |
| Indiana | 60 | 277 | - | 99 | - | 10 | 446 |
| Iowa | 2 | - | - | - | - | - | 2 |
| Kansas | 7 | - | - | 1 | - | - | 8 |
| Kentucky | 36 | - | 145 | - | - | 37 | 218 |
| Louisiana | 135 | - | - | - | - | - | 135 |
| Maine | 38 | 28 | 86 | - | - | - | 152 |
| Maryland | 34 | 0 | - | - | - | - | 34 |
| Massachusetts | 43 | - | 72* | (a) | - | - | 115* |
| Michigan | 2 | - | - | 0 | 5 | 13 | 20 |
| Mississippi | 74 | - | (b) | 544 | (c) | - | 618 |
| Missouri | 75 | - | - | - | - | - | 75 |
| Montana | 32 | 126 | - | - | - | - | 158 |
| Nevada | 48 | - | - | 38 | - | - | 86 |
| New Hampshire | 41* | 13 | - | - | - | - | 54* |
| New Jersey | 58 | 15 | - | - | 4 | - | 77 |
| New Mexico | 39 | 0 | 5 | 0 | 0 | - | 44 |
| New York | 400 | - | - | - | 75 | - | 475 |
| North Carolina | 369 | - | - | - | - | - | 369 |
| Ohio | 35 | - | - | - | - | 4 | 39 |
| Oklahoma | 32 | - | - | - | - | - | 32 |
| Oregon | 17 | - | - | - | - | - | 17 |
| Pennsylvania | 357 | 73 | - | - | - | - | 430 |
| Rhode Island | 2 | 7 | - | - | - | - | 9 |

TABLE A-4--*continued*

| State | Investor-owned | Municipal | Water Districts | Cooperatives | Homeowners' Assoc. | Other | Total |
|---|---|---|---|---|---|---|---|
| South Carolina | 83 | - | - | - | - | - | 83 |
| Tennessee | 9 | - | - | - | - | - | 9 |
| Texas | 964 | 1,329 | 689 | 665 | (d) | 87 | 3,734 |
| Utah | 18 | - | - | - | - | - | 18 |
| Vermont | 75* | - | - | (a) | - | - | 75* |
| Virginia | 65 | - | - | - | - | 1 | 66 |
| Washington | 61 | - | - | - | - | - | 61 |
| West Virginia | 54 | 158 | 164 | 0 | 30 | - | 406 |
| Wisconsin | 10 | 544 | - | - | - | - | 554 |
| Wyoming | 15 | - | - | - | - | - | 15 |
| Virgin Islands | 0 | 1 | 0 | 0 | 0 | - | 1 |
| Total Systems | 4,527 | 2,615 | 1,176 | 1,349 | 114 | 155 | 9,936 |
| Total States | 46 | 15 | 9 | 13 | 9 | 7 | 46 |

Source: Janice A. Beecher and Ann P. Laubach, *1989 Survey on State Commission Regulation of Water and Sewer Systems* (Columbus, OH: The National Regulatory Research Institute, 1989).

- No authority indicated.
* Approximation.

(a) Regulated as investor-owned systems under certain conditions.
(b) Not available; the commission's jurisdiction is limited.
(c) Counted as cooperatives. In Mississippi, cooperatives and homeowners' associations are both regarded as "non-profit associations" and are considered identical. The commission's jurisdiction over these systems is limited.
(d) Regulated as investor-owned systems.

TABLE A-5

## COMMISSION REGULATION OF INVESTOR-OWNED WATER SYSTEMS

| | Number of Systems Regulated (a) | | | Scope of Commission Authority(b) | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| State | Water Only | Water/ Sewer | Total | CERT | RATE | FIN | OWN | COMPL | REP |
| Alabama | 12 | - | 12 | X | X | X | X | X | X |
| Alaska | 23 | 2 | 25 | X | X | - | X | X | X |
| Arizona | 428 | - | 428 | X | X | X | X | X | X |
| Arkansas | 2 | - | 2 | X | X | X | X | X | X |
| California | 245 | 3 | 248 | X | X | X | X | X | X |
| Colorado | 9 | - | - | X | X | X | X | X | X |
| Connecticut | 100* | 1(c) | 101* | X | X | X | X | X | X |
| Delaware | 17 | - | 17 | - | X | X | X | X | X |
| Florida | 112 | 176 | 288(d) | X | X | - | X | X | X |
| Hawaii | 10 | 1 | 11 | X | X | X | X | X | X |
| Idaho | 25 | - | 25 | X | X | X | - | X | X |
| Illinois | 48 | 23 | 71 | X | X | X | X | X | X |
| Indiana | 40 | 20 | 60 | X | X | X | X | X | X |
| Iowa | 2 | - | 2 | X | X | - | X | X | X |
| Kansas | 7 | - | 7 | X | X | X | X | X | X |
| Kentucky | 29 | 7 | 36 | X | X | X | X | X | X |
| Louisiana | 58 | 77 | 135 | - | X | - | X | X | X |
| Maine | 38 | - | 38 | X | X | X | X | X | X |
| Maryland | 26 | 8 | 34 | X | X | X | X | X | X |
| Massachusetts | 43 | - | 43 | - | X | X | X | X | X |
| Michigan | 1 | 1(e) | 2 | X | X | - | - | X | X |
| Mississippi | 74 | - | 74 | X | X | X | X | X | X |
| Missouri | 66 | 9 | 75 | X | X | X | X | X | X |
| Montana | 32 | - | 32 | - | X | X | X | X | X |
| Nevada | 43 | 5 | 48 | X | X | X | X | X | X |
| New Hampshire | 40* | 1(f) | 41* | - | X | X | X | X | X |
| New Jersey | 57 | 1 | 58 | - | X | X | X | X | X |
| New Mexico | 39 | - | 39 | X | X | X | X | X | X |
| New York | 400 | - | 400 | - | X | X | X | X | X |
| North Carolina | 317 | 52 | 369 | X | X | X | X | X | X |
| Ohio | 29 | 6 | 35 | X | X | X | X | X | X |
| Oklahoma | 32 | - | 32 | - | X | X | X | X | X |
| Oregon | 17 | - | 17 | - | X | X | X | X | X |
| Pennsylvania | 357 | 0 | 357 | X | X | X | X | X | X |
| Rhode Island | 2 | - | 2 | X | X | X | - | X | X |

TABLE A-5--*continued*

| | Number of Systems Regulated (a) | | | Scope of Commission Authority(b) | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| State | Water Only | Water/ Sewer | Total | CERT | RATE | FIN | OWN | COMPL | REP |
| South Carolina | 43 | 40 | 83 | X | X | X | X | X | X |
| Tennessee | 8 | 1 | 9 | X | X | X | - | X | X |
| Texas | 964(g) | - | 964 | X | X | - | X | X | X |
| Utah | 15 | 3 | 18 | X | X | X | X | X | X |
| Vermont | 75* | - | 75* | X | X | X | X | X | X |
| Virginia | 53 | 12 | 65 | X | X | X | - | X | X |
| Washington | 61 | (h) | 61 | - | X | X | X | X | X |
| West Virginia | 49 | 5 | 54 | X | X | X | X | X | X |
| Wisconsin | 10 | - | 10 | X | X | X | X | X | X |
| Wyoming | 15 | (h) | 15 | X | X | X | X | X | X |
| Virgin Islands | 0 | - | 0 | - | X | X | X | X | X |
| TOTAL | 4,073 | 454 | 4,527 | 35 | 46 | 40 | 41 | 46 | 46 |

Source: Janice A. Beecher and Ann P. Laubach, *1989 Survey on State Commission Regulation of Water and Sewer Systems* (Columbus, OH: The National Regulatory Research Institute, 1989).

- No authority indicated.
* Approximation.

(a) Forty-six commissions regulate investor-owned water systems. Twenty-five regulate investor-owned combination water and sewer systems, although Michigan, Washington, and Wyoming regulate only the water portion of combination systems.

(b) CERT = certificates; RATE = rates; FIN = finances; OWN = ownership; COMPL = complaints; REP = reports.

(c) The Connecticut DPUC regulates combined water and sewer systems only when the sewer system is investor-owned and discharges treated effluent to a stream or river.

(d) The Florida PSC includes regulated homeowners' associations in its totals for investor-owned systems and makes no distinction between these two types.

(e) Only the water portion of combination water and sewer systems is regulated.

(f) A 1987 New Hampshire law requires PUC regulation of investor-owned combination water and sewer systems. The law currently is being implemented and the number of regulated systems is expected to increase.

(g) This number includes homeowners' associations, which are considered investor-owned systems in Texas.

(h) Only the water portion of combination water and sewer systems is regulated; such systems are included in the total for investor-owned water systems.

# APPENDIX B

## STAFF CONTACTS FOR SURVEY ON COMMISSION PERSPECTIVES REGARDING DEREGULATION

| | |
|---|---|
| *Arkansas* | Robert Booth, Audit Supervisor of the Gas and Water Section, Arkansas Public Service Commission. |
| *Colorado* | George Parkins, Supervising Engineering Analyst, Colorado Public Utilities commission. |
| *Connecticut* | Peter Kosak, Associate Utilities Engineer, Connecticut Public Utilities Commission. |
| *Florida* | William Lowe, Assistant Director of Water and Sewer, Florida Public Service Commission. |
| *Idaho* | Donald Miller, Auditor, Idaho Public Utilities Commission. |
| *Kentucky* | Phyllis Fannin, Director of Rates and Tariffs Division, Kentucky Public Service Commission. |
| *Maine* | Raymond Hammond, Senior Utility Engineer, Maine Public Utilities Commission. |
| *Michigan* | William English, Public Utility Engineering Specialist, Michigan Public Service Commission. |
| *Nevada* | Paul Kvam, Staff Auditor, Nevada Public Service Commission. |
| *New Mexico* | Gary Roybal, Engineering Manager, New Mexico Public Service Commission. |
| *New York* | Robert Mulligan, Director of the Water Division, New York Public Service Commission. |
| *North Carolina* | Andy Lee, Director of the Water Division, North Carolina Utilities Commission. |
| *Oregon* | Glen Lauterbach, Water Rate Analyst, Oregon Public Utility Commission. |
| *South Carolina* | Charles Creech, Chief of the Water and Wastewater Department, South Carolina Public Service Commission. |

| | |
|---|---|
| *Texas* | Steve Blackhurst, Chief of the Rates Division, Texas Water Commission. |
| *Utah* | Dan Bagnes, Auditor, Utah Public Service Commission. |
| *Vermont* | Fiona Farrell, Counsel, Vermont Public Service Commission. |
| *Wisconsin* | Scot Cullen, Administrator of the Engineering Division, Wisconsin Public Service Commission. |

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